written by

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Alone y: we can explain the Pain
w: ~~app~~ is felt Sooner & more in y
Head in Lower than in Other Parts viz:
from y Blood's rushing more impetuously
into it on y Acc: of its direct situation to y: Heart.
2.ly upon the Different States of y Blood
in the circulating System, so that if
one part is Obstructed, the Blood will run
w: greater Velocity in Others.
3.rd upon a Stimulus applied to particular
parts or relaxing powers applied to
them. This finishes what I had to say
upon the Doctrine of proximate Causes.
the Remote Causes or potentia Nocivæ
ought to come next, but I shall pop
them over here or they will come in better in y: Methodus Medendi

we come then to treat of the III part of our Pathology viz: of Symptoms. For a Definition of Symptom recollect w: was said formerly. They have been divided into several Classes, but we shall reduce them all to w: are called "Actiones Læsæ" and these I shall consider on a general plan. I shall in treating upon these Actions follow the Ordinary Division of the Functions in 1 Vital 2 Natural & 3: Animal

The Vital are those w: are more Essentially necessary to Life, & w: Life cannot subsist.

The Natural are necessary to y: Subsist of Life but not so much so as y: Vital. they

are employed in supporting the Frame & Fabric of the Body.

The Animal are those Functions w^ch: Animals have, wch dispose them to act on Bodies & to be acted on by them. or in other words they are the Organs of Sense & motion & are common to all Animals as well as man.

we shall begin w^th: the last, & 1st: we shall treat of the Symptoms of Sense, or of morbid Sensations. the first & chief of these is Pain & Anxiety. these are ye most general & important of any of the Path^o: we shall begin w^th: the first.

Pain. this is a Simple Sensation &

therefore cannot be defined. Now pain
: from which "Pain & non effect" are
said to be painful. Pain may be divided
into 1° Disagreeable 2 uneasy & Painfu:
ful. The Disagreeable are ye first sensa-
tions w: arise from the qualities of Bodies
such as Colour, Sound &c. or from
these Limitations wch we receive from ye Four
Organs of Sense. Sing. Hear. Smell & Taste.
The uneasy & painful are distinguished
from y^e Disagreeable by being referred
to a Limitation wch exists in our own Bodies.
The uneasy are more or less vague & not
limited to any One place such as our Pains
in the Head. Oppression in y^e Breast &

bearings in the Limbs.

The painful sensations are always restri=
=ted to one part, or at most to a very
small part & seldom receive a large
space. The causes arise from a Fence
of Difficulty in ye Parts & sensations
pain arising from Circumstances wch accompany
Causes to produce a Difficulty in ye Fence
of our Functions. This is all we can
say on the distinction of pain, for a
more precise Meaning of it, must re=
=fer you to common Experience.

Let us now enquire into its Causes.
It depends on the Condition of the
part to wch we refer the Sensation wch

depending upon some actual cause affecting it.
Dr Gardiner Lectures § 67th that pain are
imaginary pains. but in this instance
taken. we cannot have the idea of pain
renewed in our Memories. ~~[illegible]~~
~~[illegible]~~ the idea of which we
require by smell & taste cannot
be renewed by the Memory. Pain asso=
=ciates to be an idea of the same nature
& hardly for us it is so, as indeed nearly of the
Happiness of Life depends on it. we
can renew upon our Memories fugac=
=tain Dreams of Association. disagreeable sensa=
=tions
which we formerly felt, but we never can
renew that precise sensation we felt

(2) The pain felt in amputated limb depends upon an error in Reference, & not upon an affection of the limb itself, or upon any change induced in the Brain.

in Pain Merely by the Force of Imagination.
— If even the Memory of pain is renewed
in Sleep or at any other time it must
be Only by means of certain Arbitrary
Signs. If even we dream of feeling pain
a real pain must attend these as
repeated Experience has often taught me
in Regard to the Toothache. (a)

What is the Condition of the part which
causes pain? — very Confusion of a certain
Degree of Strength gives pain. The Force of
a right Sometimes brings on a pain in the
Eyes. Intensity of Sound likewise often
occasions pain in the Ears. But both
these Impressions may be reduced to the

Loss of Feeling in the Eyes and Ears are affected in Consequence of the Loss of Feeling as well as Organs of Vision & Hearing.

Pain depends on the following Causes. external or internal to our Bodies, Internal Pains add every feeling. To this we add every pain or extension of any ~~part~~ consent part of the System. Physiologists have shown only off Intestines from their Theory of Pain depending on a tendency to Solution of Continuity but every Mode of Disease may be considered as the Cause of Pain.

Pain may likewise depend on Sharp Bodies tending to cut Nerves in Pieces or when Corrosive Bodies w: tend to

gestion, for Feature of Extension.

What effects in Keeps pain & Pleasure
be considered as Causes of Pain. I do ap-
afraid? by producing or suffering the
Nerves? I shall not answer this yet.

First then are Sensations wch are analogous
between painful & uneasy Sensations.
Hence as Pain non-Paint. Provided the
of wch we shall say more hereafter.

All the Causes of Pain may be reduced to three
wch tend to a Solution of Continuity except pressure
& Cold. & these appear to act by urging
the Nervous power upon the Sensorium.

Intense pain of all kinds appears
to depend on Distention. The nervous

(or the Drawing of a Dog.

4 3 Reason. The 1st take place in the certain Internal System. The 2nd in ~~Diseases~~ of Joints, the 4th in the Eliminent: Canal. Swellings, the 5th in the Eliminent: Canal.

So Judgment can be formed of the cause of Internal Pain from the Symptoms of it w: pain arises from external causes. The pain arises from external causes. The Pain in the Gout resembles a Pain exactly by some boring Instrument, while it depends from Nothing else but Fluids overdistending Vessels. — But there are Pains from internal & external w: have a greater Relation to each Other, & yet there is not the least Cum Clause in y Causes which excite them. This depends upon a subtility y we cannot explain.

Q: Does the Degree of Pain depend on either upon 1: the Force of Impression or 2nd upon the Sensibility of the Part affected. Dr Gravesius supposes its Degree is always proportioned to the Danger &c: but it frequently happens that this is not true. for in Cases of great Sensibility in particular parts we can the most exquisite Pain without the least or no Danger. The Degree of Pain then will depend chiefly upon the Consideration of the part, how far the Force of Impression may influence the Degree of Pain &c I should not enquire here.

We come to speak of Anxiety. all
Bodies act either externally upon the Nervous
System, w.h prove a fruitful source of
Impressions but there may be Impressions
without our being able to refer to the
place where the Pain is seated or the
Cause w.h excites it. Pain depends upon
Impressions external to the Nervous System.
- the "Molesta Sensationes" belong to the last
kind of Impressions w.h I shall distinguish
by the name of Uneasiness instead of Anx-
-iety w.h I think includes too much. ~~For~~
Pain is attended w.h Aversion & an Effort to re-
-move its Cause, whereas Uneasiness is attended

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th
w: but random Efforts to remove it,
such as Jactation, or Restlessness and
Inquietude. But there are certain
Sensations w.h do not rank w:y painful
or uneasy such as the Repletion of Hun-
-ger Thirst &c. Let us now enumerate
the various species of Uneasiness. The
chief Example of it is in Sensation w.h
arises from the Nervous System universally
~~[illegible]~~ considered. When it is in a passive
State Calmness Gaiety Cheerfulness &
Courage ensued, but when it is in a
contrary State Movements - Idleness Fear
- Hesitation - Irresolution - Doubt &
Despair always ensued in a higher

or lower Degree. This is generally called
Lower Spirits, & differs you see consider-
ably in Degree. You may easily know
the Causes of these Sensations from what was
formerly said on the Laws of ye Nervous
System.

1st Fears & Interruptions in Thinking
2nd Uneasiness from difficult Respiration
called an Oppression on ye Breast.
3rd Uneasiness from ye difficult Action of
the Heart depending on a weakness
of the Heart itself or Resistances to its
ready & free Incumbation. It is impossible
to distinguish when the One or the Other
of these take place. Syncope depends

upon the foot. The last Cause in Cases of Colphi.

Uneasiness arises from an internal Action of the Stomach, occasioning what is called "Cquitudo". This species of Uneasiness occurs more frequently than any of the rest from its Connection w: every part of the System. On this condition does Uneasiness depend when it arises from the Stomach? Disgust is involved in Darkness. Want Debility is often attended w: a Cause of Uneasiness. The Anxiety of Hypocondriacs to be referred to this source. But it may arise also from a Sense of Resistance to its

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fection such as a constriction only.
Pylorus this is a most fruitful
source of Uneasiness in the Stomach.
The Pylorus from its situation is very
liable to these Constrictions. The Conse-
quence of this is a weakness & Inversion
of the Peristaltic Motion of the Stomach
& Intestines. by forcing the Stomach
it forms squares at the Pastric Juice which
throws up & constitutes the Cardiac
ea Flatulentia. vomiting depends upon
a Constriction of the Pylorus especially
when it arises from the coldness of the
Stomach. how is the Stomach affected
in Syncope & in the Beginning of fevers
Is the Pylorus constricted then?

shall not answer this Question, but leave it to you. I think the State of the Pylorus should be more enquired into in seeking for the Causes of Diseases in the Bowels. But Again Uneasiness in the Stomach will depend upon a Difficulty of the Blood passing thro' the Stomach, or upon the greater or lesser fullness of its Blood vessels. These are therefore the principal Species of Uneasiness in the Stomach but we have not time to point them out. These occur most frequently more especially in Females. all Uneasiness in Sedentary w. regard to the System induces a general debility upon it. If it is not so strong as to overcoy

the System it afterwards proves Fatigue-
-cating. It produces an Effort of ye System
to relieve itself.

I cannot now to speak of the
System of the Intellectual Faculties.
These are subject to great Interrup-
-tions & Irregularities. The first Instance
of this is a want of Sensibility to those
Impressions which are designed to excite
Reflexions. In Infants this is cau-
-sed by Distemper or Habit. When ye Mind
is unable to mark the Relation of Ideas
a Loss of Memory is induced which occurs in
Old Age. The Causes of these are deeply
involved in Obscurity, & shall therefore

further enquiring into them. We shall first consider the irregularity of our intellectual faculties. There are 3 kinds 1 False Perceptions 2 False Deductions or Reasonings 3 false or unmeasured Volition.

1 All our Ideas arise from Impressions. When they arise from the senses immediately it is called Sensation. There is a Difference between Sensation & the mere Renewal of an Idea. Now when Objects are present to the mind we are aware of it we call it false Imagination, or a species of irregular Exercise of our Faculties.

2nd False Reasoning. The Renewal of Ideas depends upon certain laws in this Species.

tion. This Association is ye Faulty of Memory. but it may be in various Conditions. it is Naturally founded on the Relation of things. Every Man forms a set of Associations himself, & Others which are common to the rest of Mankind. Now these Reasonings arise from ye Mind's not properly Dividing the Associations or Reasonings: are Blurred by every Body round ~~imitial~~

3.rd False or unreasonable Deduction. our Ideas ought always to be Deduced from our Reasonings, & ought be adjusted to the Relations of things as commonly perceived. There is ye a standard

tho' with regard to our Desires & Aversions, they
wch differ a little in different Countries but
in whom the whole nearly same all
over the World. an Effect from inci-
dent of these constitutes Madness. if a
Man is angry at a Person whomever
offended him he is said to be mad.
not a Man fear when there is no
Occasion for it he is also Mad. hence
we see the unmeasured or false
Conditions. All Cases of Madness
may be referred to One of these Heads.
Let us now take the notion of Madness
as joined wth Fever. the word Delirium
has been employed to signifie this

kind of madness. There are two kinds of Delirium 1 Depending on the increased impetus of the blood in the brain.

2.nd Upon a diminished excitement or some Resistance in the Action of the brain.

1.st The case of Phrenitis belongs to this head. It is always attended with delirium & depends on an increased impetus of the blood in the brain. But it may occur in the hot fit of Fevers. in this case it the wind depends on increased impetus as the full Pulse - inflamed eyes throbbing temples Pertinacious, &

increased sensibility of the Eyes & Ears all sufficiently indicate.

2nd We have undoubted proofs of Delirium arising from this Second Cause. We often find it in Continual Fevers when the Force of the Pulse Gently decline, and attended w: those Symptoms we last mentioned of increased Irritation.

It is moreover cured by Stimulat: Medicines w: is the Reverse of the former.

Furor is generally employed as a Characteristic Mark of Delirium but it ~~occasionally~~ we ~~the first~~ is not always present in the first or Absent in the last, therefore we shall not include it in our Idea of Delirium.

of Madness without Fever.

we shall call it Insania.

Insania is of two kinds 1: It is attended w: a false Reasoning w: regard to the Subject only. 2nd when the Intellect is general w: regard to all coherence is general w: regard to all Subjects. this kind is generally called Mania. Melancholia, the 1st kind is Melancholia, but simply as it is often attended w: a contrary temper of mind to Exuberancy or big: w: foolish Visionary hopes. 2nd Mania appears under a variety of forms w: each of them. It is not necessary to distinguish into different species.

What is the proximate Cause of

Delirium? This subject is involved in obscurity upon ye head of ye abstruse nature of the nervous system. I shall however attempt it. In the case of Delirium it depends ~~[illegible]~~ upon encreased Impetus, but this does not act solely. Violent exercise after bringing on this encreased Impetus & yet no Delirium attends encreased Impetus alone then will not be sufficient for Delirium. a Resistance then to ye Brain Rest must always take place. So that with a kind of Delirium we have the effect depend more or less upon ye same Cause. It is difficult to conceive how

these mixed causes operate, but we have an analogy to it in operations of narcotics. they are both sedative & stimulating, & it is only when they act in the manner that delirium results from a person just waking from sleep, in his delirious state from the imaginium being under a mixed power of both the causes we have spoken. when a man dreams his brain is in this half excited state. they can only happen in those cases when some stimulus excites part of the brain, but from another part being unexcited, a confusion of thought

× They differ from Delirium in this way.
c. y Brain is in a less excited state than in Delirium or Madness. —

(a) Men whose Imaginations make sudden transitions from Pain, being Lulled & then become Gritty are in Consequence of these fluctuations. the Brain is in a too highly excited State. hence the Poet justly said "Great wit & Madness nearly are allied"

arises. now Dreams & Delirium are exactly analagous to each other: in the Delirium the brain appears to be in the same state as in Dreams. Delirium and Dreams come on in the same manner. Re-Excitation of the diseased brain of Maniacs shew the organic affections which strongly confirm the Doctrine we have advanced. but an Excess of Excitement as well as a want of it tends to bring on Mania. hence Lazzaroni live so long without sleep. & when Cold & Sedative Infusions do well. as an unequal Excitement of the Sensorium keeps on the sleep as well as an Excess of it. (as this state of Excitement has said

depend upon an Excess of Tension, but this will not account for Madness or Deli-
ria. The Causes then
must work Severe. What Other Causes then
concurrate to give this unequal Excite-
ment in Madness? The Nerves may be
in Pain, or Organs of Sense & motion.
The Nerves we formerly said convey the
Lunated Nutriment; how this different
Conditions may depend upon their being
more or less moistened w: Nutritious
Matter. This Conjecture seems to Ex-
plain why finding the Brains of
Maniacs always dryer & harder than
is Natural. Mr Meckel at Berlin
found the specific Gravity of ye Brain

of various considerations.

Fatuity depends upon the Reverse
causes of Madness viz: too great Placi-
dity & Humidity of the Brain & Nerves,
which unfit them to propagate Sensa-
tions. The Fatuity of Infants evident-
ly depends upon this Cause. Dissections
have shewn that the time of Organiz-
ation differs & the Dissectors have found the Brains
of Idiots always preternaturally soft.

(as this may be subdivided into
two heads 1 where the Jurisdiction is
not affected, & 2 where the Jurisdict.n
affected w.th stoppage. the first has been
called by Authors Convulsive stoppage
speaking. the 2.nd speaking, the Jurisdict.n
may likewise be brot under this second
head.

The Moving Powers may be divided into two kinds as consisting in Press of Motion & 2d in want of Motion. Press belongs to the first. This may be divided into two kinds. 1st Alternate: being the Relaxation wch called Contraction on Motus Cordis. 2d Press wch does not Alternate wch Relaxation of Cordis. Alternate wch Relaxation of Cordis exhibits in One Grande force convertible Crise. This is properly called Press or Motus Tonicus.

The Causes of Press & Consolidation are nearly the same & often mixed. I explained them to you before when treating on Irritability. They may be reduced

1st Upon the Force of Impression, having stimuli a specific power of inducing Convulsions? I believe not. It would however be of use to consider the many different Reasons in w: Stimuli effect: rate. Are direct or indirect? w: at from y Force of Impression be w: at from the other circumstances joining w: them.

2nd Upon encreased Sensibility defend: on a Mobility of y Nervous System.

3rd Upon encreased Irritability. Tumors especially those of the Inflammatory kind defend upon this Cause. Dr Quelmiz my justly ascribes Liberties to it Reverse.

4th Upon a Mobility depending upon a Want of Tension. This Cause is of Reverse

of the former, & is induced by a want of
Energy in the Sensorium.

5th. Upon those Causes wch disturb ye establish
Order of our Actions. our System is sub-
ject to Habits wch determine ye Velocity
of all our Motions. any Cause that
wch disturbs the Series or Train of our
Motions may bring on Convulsions
in Persons the first Instance we assigned
by the Force of Imagination may action
this way? — be after the Persons
who when they first learn to play
on ye German Flute sized wth
Convulsions in their Fingers from
moving them quicker ye Ordinary.

The Defect of Motion may depend upon the following Causes.

1 Various Organic Affections of the Muscles preventing their Contraction. such as over Distention with Blood.

2nd Morbid Affections of the Nerves Fibres alone or upon Atonia.

3rd Upon an Interruption of the Nervous Influx from the Sensorium into the Muscles. These two last are only properly to be called Palsy. The first Case may be called simple Atonia as the Muscles & Sensorium are seldom affected in it.

I shall confine myself only to the last Cause, which may be reduced to two Heads, as depending 1st. upon Causes external w.h interrupt the influx of the Nervous power or 2nd. upon diminished Excitement. The 1st Class Compression may depend on extraneous Bodies — Effusions of the Brain — Tumors — Plenitude of the Blood Vessels of the Brain — Fluids effused from Cavities — Gangrenous Nervous System — increased Exhalations — Tumors found Out &c. — Plenitude of the Vessels induces it most frequently especially when in the Nervous System.

This Distinction sufficiently confirms, relapsing in all its Types arises from this Cause.

2 Diminished Excitement - the hand to the brain this is in Excess or Defect. We are sure that Cold - Narcotics & Tonic Astringent - Depletion weaken by inducing a Diminished Excitement or Atonia in the Moving Fibres.

Of the Symptoms of Respiration

We come now to treat of the symptoms of Respiration or of those ailments which render it difficult. The subject is very extensive, & from that circumstance to give you all the cases in a synoptical or tabular form.

Inspiratio sit difficilis

I In sitio Aeris

1 Nimis rari

2 Nimis calidi

II. In Angustia viarum per quas Aer intrare debet.

Angina varia Class. VIII. G: X Sauvage

Orthopnoea a deglutitis G: IX Sp: 9

——— a Bronchocele 10

——— Variolosa 24

III. In sitio Thoracis

1 Male Conformata

III In vitio Thoracis

— Dyspnoea Rachitica G: VII Sp 10

— Cotiuma a Gibbo G: VIII Sp: 9

2 Casu

A Luxatione } Dyspnoea traumatica 15
B Fractura
C Ancylosi } Orthopnoea traumatica 14

3 Sine Dolore motum negantis

Dyspnoea traumatica

Pleuritis.

Pleurodyne

IV. In vitio musculorum Inspirationi fa-
-milliantium.

Dyspnoea traumatica 15

Orthopnoea traumatica 14

Dyspnoea Scorbutica 22.

Dyspnoea Galenica 17.

Dyspnoea ab Hydrocephalo 23

V. In vitio Pulmonis

1 Rigidi

V. De vitio Pulmonis

1 Dyspnoea Rachitica 10.

2 Spasmo constricti

A de Aere frigido.

B de Aere inquinato 1

Asthma Metallicum 12

De Fumo et Vaporibus 16

C de Irritabilitate

2 Asthma Idiopathicum

Asthma Humidum 1

——— Convulsivum 2.

b. Asthma Sympathicum

Asthma Hystericum 3.

Orthopnoea Hysterica

Asthma Hypochondriacum 4

——— Stomachicum 8.

——— Convulsivum Boerh. 19

Orthopnoea de Antipathia 15

Asthma Arthriticum 5

V ex vitio Pulmonis

2 G. b Asthma Panthumaticum 11

——— Pneumonicum 14

Orthopnoea febricosa 20

——— a Vermibus 17.

3 a Matrice Occlusi

A Sanguine

Peripneumonia.

Haemoptoe

Asthma plethoricum 15

Orthopnoea sanipneumonica 1

—— Pseudo-sanipneumonica 21.

Asthma a Polypo Cordis 6.

Orthopnoea Caidiaca 2

B. Sero

Dyspnoea lithuitosa 1.

Asthma Cachecticum 13.

Inspiratio fit difficilis.

V a dicto Pulmonis

B. Orthopnoea ab Hydrothoraxe 12.

C Vitio

— Asthma Catarrhale 16.

— Suffocatio 17.

D Cordis

Dyspnoea a Syncope 12

E Pure

Orthopnoea a Vomica 7.

Phthisis pulmonalis

F Calculosis

Dyspnoea calculosa 13

G Pulvere

— Asthma Pulverulentorum 7

H Tussare

Dyspnoea a Tuberculis 2

ab Hydatidibus 4

V Ex vitio Pulmonis

H – a Stratomatibus 5

— a Bronchica 6

VI Ex Pulmone compresso

1 – a Causis intra Thoracem

Asphyxia a Corde 11.

Orthopnoea ab Aneurismate 8

— a Pericardine 6

— a Diaphragmate 18

— a Hydrothorace 5

— ab Empyemate 13

Asphyxia traumatica 15

2 a Causis in Abdomine existentibus

Asphyxia a Meteorismo 7 or over. Bulk

— a Gravidita te 8.

— a Tympanitica 9

— a Stomacho 13.

— a Liene 14.

VI De Pulmone contorsa.

2 a Gastrocele 18

Orthopnoea Gastrocele 11

Asthma Hypochondriacum 18.

I De Iris litio. very few diseases arise from this Fourth Faculty & Caubius has been very diffusive upon this subject. &

II De Inquietia Viarum per quas Ser- in tuae debet.

ill Predisposes marked under this Head are rather Symptoms of a Disease than any thing else. They attend in cases where little Danger is to be apprehended.

Sauvage has considered some of them as Diseases of young especially Infant, but they depend upon nothing else

but a narrowness of the passage thro' w^ch
air the^y pass.

III. Ex vitio Thoracis, wch may be either
1^m congenial, or produced shortly after Birth.
or 2^ly may arise from occasional Lesions, or
3 It may arise from pains restraining
the Muscles wch should move ye Thorax. to
these we might have added 4th a difficult
Inspiration from Decubitus wch may be
bro^t on by 3 Causes 1st an affection of
one Side of the Lungs wch prevents them
being properly exercised 2nd from a bonna
fide water being accumulated on one side.
3rd from the Lungs being compressed by water
in the Abdomen, & therefore unable to
dilate themselves in Bed. The Inspiratio
difficilis from ye Posture of ye Body might

have been brot in under this Head.

IV. Ex vitio musculorum Inspirationi sommilcantium.

This often takes place in & Lungs from the Muscles being rendered paralytic by increased Circulation of the Blood, or by Pains resembling the Rheumatic, or by the Globus Hystericus in Uterine Cases: these take notice of in the Lungs.

The Dyspnoea Galenica happens in Consequence of cutting the Phrenic Nerve in ye way of Experiment. But I have seen it occur from other causes. The Dyspnoea Apoplectica might have come under this Head as depending in some Measure upon this Cause. —

of Vitio Thoracis. The chief Causes of difficult Respiration are to be reduced to this Head, as they are ye most general primary Affections of the Lungs.

1 Rigidity of the Lungs, this may include besides those we have mentioned Obstructions of the Bronchia. Morgani & Bonetus give us several Instances of it.

2 Spasm - This is a frequent Cause of difficult Inspiration. The Cartilages serving Inspiration are liable to Spasm. This Spasm may depend on particular Stimuli applied to ye Muscles serving Inspiration or upon a general Affection of the System wch disposes it to these Spasmodic Structures.

The Asthma metallicorum is ~~not~~ two general.

2. The Action of Sulphur ~~must be~~ is to be reduced to this Head, but it rather belongs to the more Irritating Substances which induce Spasm on the lungs, or Authority of the Nervous power. for the Mobility of the Mephitic Air w: the ⊕ carry it w: it Act in this way. —

The Asthma Stomachicum deserves our Notice. for Asthmas commonly w: out affections the Stomach first. this Insinuation depends upon a Stricture of the Pylorus.

Orthopnea or Anti hathinio very impro: per. it would be better to say a Pathemaile for we often see Dyspnoea brot on by Passions of the Mind. &c

Irregular motions brot on by Sedon or things of y: kind are most apt to show themselves upon the Lungs.

The Asthma Arthriticum is a common Disease, but does not depend on a Metastasis of Morbific Matter, but on y: Equilibri: of y: Nervous System being destroyed.

The Asthma Rheumaticum. the Asthma brot on in Consequence of Ulcers being dried up may be reduced to the Head. It does depend on Morbific Matter stimulating the Lungs, but on y: same Cause as the Asthma Arthriticum.

The Asthma Venereum very seldom

occurs. I know of no Author who has described it. Lavauge pretends to have bor-rowed it from Fischer, but Junker says no more than that if such a Symptom should occur it must be cured w: th: Perennials in ye usual way.

Certhrospnoea Febrilis. Every thing hinges ye Blood too quickly to ye Lungs brings on Dyspnoea. But it occurs too in the cold fit of Fevers from (not a Congestion of Blood in ye Lungs) but a Stricture on ye Capillaries of the Lungs.

——— a Vermibus. This is evidently Sympt: & requires no Explanation

3:do The Matters w: by filling ye Lungs

occasions difficult Inspiration are very various.

Sanguinis. This may act either by being congested in its proper vessels or effused into the Bronchia. The first of these occasions Asthma. all quickened Inspiration may be called difficult Inspiration; it generally arises from an excessive Quantity of Blood in the Lungs. the difficulty of Breathing in Fevers depends on this Cause from Blood being poured too plentifully into ye Lungs.

the Inflamm: & Hæmorrhagic Diathesis gives a particular Determination of Blood to the Lungs. ——

The Asthma Asthmaticum attends generally all plethoric Persons.

The Orthopnoea Peripneumonica is nothing else but an improper species of ye Catarrhus suffocativus.

The Orthopnoea Pseudoperipneumonica is ye Peripneumonia notha of Sydenham & Boerhaave. It is nothing but a Catarrh or a Congestion of Blood wch is greater than ye Stimulus wch induces it.

Dyspnoea & Calculus depend generally upon Calcarious Earth, at least all ye Stones I have examined are of this kind.

the Dyspnœa a Pulvere. is a real Dis:
-ease. The Flax Dressers are most subject to
it. It is somewhat burthering y: Millers
are not subject to it. perhaps it may
be owing to y: Flower being less offensive
to the Lungs. The Miller's Cough
proverbial - owing to Cold
Burdens &c - Hair Dressers
who live among Flour
not subject to it.

Symptoms of the Heart's Action.

The Consideration of the Pulse naturally comprehends every thing relative to the Heart's Action.

I shall consider the Frequency of the Pulse, & confine myself to those which are most commonly marked. But here we must premise that ye same Causes always excite both ventricles of ye Heart at once, & ye Action of ye Heart depends upon its Irritability. This Irritability may be considered as a "vis Insita" or as depending upon the Sensorium. I do not suppose the first can be independant of the last as Dr Haller has done, but shall assume it at present meaning by it those Causes which act on ye Heart

itself directly or upon the Sensorium first & indirectly upon the Heart.

The Causes acting upon ye Heart directly are 1: an Influx of Venous Blood.
2 more or less Evacuation of ye ven: Blood.
3 The different States of Irritability.
4 Unusual Stimuli applied directly to the Heart itself.

The Causes acting on ye Sensorium may be reduced to ye following
1 Direct & 2 Indirect Stimuli.

1: we shall consider the Causes wn act directly on ye Heart

1: what ever encreases the Influx of the Venous Blood beyond wn is ordinary

will increase the Pulse. Muscular Motion will produce this Effect, as also a frequent Respiration wch is ye most com-mon Cause of a quick Pulse. If the Size of ye Sanguifer: System is ~~not~~ over proportioned to ye Heart's Magnitude a quick Pulse will be produced. This is ye Case wth Infants hence ye Frequency of ye Pulse.

2 Imperfect Vacuation of ye Heart's Ventricles will produce a Frequency of Pulse, as ye Heart's Contraction always continues the same. This Imperfect Vacuation arises from Causes 1 a Weakness of ye Ventricles of ye Heart. This occurs

in all Cases of great Debility as in Deliqui:
um Animi, or in dying Persons. hence
we always find a frequent pulse just
before Death, unless from some Cause
y Sensibility of the Heart has been
destroyed. or it may arise 2ndly from
a Resistance in the Blood: Vessels de:
pending on Pneumon: Polypus Obstru:
ctions & Spasmodic Affections of the
whole Arterial System. the Pulmon:y
Artery is affected by every thing wch renders
Respiration quick or difficult. so that y:
Blood: Course is more apt to be quickned
in the Lungs than in y e Aortic
System.
3 Increased Irritability may

increase the Heart's Action — This will depend upon increased Irritability in the whole System. Hence y frequency of Pulse in Infants & Females.

2 upon General Atonia & Debility which gives Irritability & Irritability

3 Unusual Stimuli of y direct kind have been supposed to increase the Heart's Action. Physiologists have called in Heat, Heat, or a Specific Acrimony in the Blood as direct Stimuli to the Heart. But this is without Foundation from y Heart's insensibility to them both, & from y power of Habit rendering them ineffectual. What are y unusual Stimuli which act on y Heart? These are fewer than is commonly supposed.

as appears from Dr. Smith's Experiments.
- we are often sure of an Acrimony
circulating in ye Blood, yet no quick-
ness of Pulse attends it, as in Cases of
Febrile Jaundice &c.
Mercury Antimony & Arsenic are powerful
Stimulants, & yet when received in ye
Blood never affect the Heart directly.
if they ever do affect it, it is indirectly
by Stimulat: the Stomach or some of ye
Excretories. What has been said here
applies still more to the Arteries. if
there ~~are no~~ Direct Stimuli It must be
ye Sedative Impressions but even these
act on ye Sensorium first & indirectly

on ye Heart.

Let us now consider the Causes which act on ye Heart by ye Intervention of the Sensorium. these are Stimuli of a direct or indirect nature. the 1st are originally Stimulating; the last are at first Sedative but more Stimulating afterwards. the 1st of these prove ye most frequent Cause of ye Quickness of ye Pulse such as Fevers &c.

What does Irregularity of ye Pulse denote? Intermission? or Pulsations not succeeding each other at proper Intervals? this is called Palpitation of Heart. it requires no Answer from us: has been said. See Dr Gambius § 777.

Having considered the velocity of ye Pulse
let us now attend to its
Hardness softness Fulness &c
It is very difficult to tell precisely
when each of these take place. Some
have supposed a Distinction between
a quick & a frequent pulse, but I
have never been able to perceive
it so accurately as to speak of it w:th
Certainty. I always judge of ye Frequency
of a Pulse by its suddenness. the Blood
has a lateral & progressive Motion. now
in ye sudden pulse we feel ye lateral
stroke only wch is known by its being

pointed & accumulated. It is common
ly distinguished by Surgeons by ye name
of a Jerk in the Pulse, & is generally
opposed to wch: is called ye undose Pulse
in wch ye progressive motion is evidently
perceived. You must consult your
own Experience for a more accurate
knl of these Distinctions.

- The full & strong Pulse are often
united. the full Pulse depends not on
more Blood evacuated from ye Heart
but upon Resistances in ye Course of the
Blood. this is evident from ye full
Pulse wch follows Ligatures. this
lays a Foundation for a Distinction

between a full & strong Pulse. the full pulse is generally slow & soft. the strong for the most part hard & quick, & gives a sense of Tension to ye Physicians Hand. a strong hard pulse is always a favourable Symptom in Fevers but it is still more favourable if it is full only w^ith out any great strength. a full Pulse does not always indicate a great Quantity of the Blood in a Patient as the Fulness of the Pulse is greatly influenced by the Size, situation &c of the Artery at the Wrist. the full Pulse in Inflam^n: Tumor likewise depends only upon a Resistance & not upon an Increase of the Quantity of ye Blood or

of the Hearts' Force.

The Hardness & Softness of ye Pulse depends upon ye Muscular Fibres of ye Arteries themselves. the first is owing to an Excess of Tension in ye Arteries. the last to a want of it. It is the greatest Desideratum in Medicine to know when ye Pulse is hard & soft & w: are all the intermedi: degrees between a hard & soft Pulse. I conclude then that a 10,000 Circumstances vary the Pulse, & that nothing is more difficult than to form a regular Judgment of Diseases from it. I

think the different states of Equality & Inequality of the Pulse w: indicate the state of the system much better than the frequency of the Pulse. here I must add that I have never observed the nice states of the Pulse Solano takes notice off. or if I have I evident discovered any of them I have never observed the critical Discharges follow them that Solano talks off. perhaps this may be entirely owing to our Northern Climate in w: Fevers & other Diseases observe less regular periods than they do in warm Climates.

Altho' I said before y^t ye Consideration of remote causes would come under ye Methodus Medendi, yet I think it will be of use to treat of a few of them in this Class. The subject is very extensive — but I shall confine myself only to Air & Diet.

1st We shall treat of ye Sensible Qualities of the Air.

2nd We shall treat of ye properties of ye Air by wch I mean its Density Elasticity &c.

3rd We shall take notice of ye Air as impregnated wth foreign bodies.

1: Heat & Cold are very extensive in

their Operation, and act differently in different times even in the same Degree.

Their Action is diversified 1st by their Degree of Intensity as expressed by y Thermometer in as far as the Body is considered as inanimate, or as a common Mixt. then 2 we are called y Absolute Effects of Heat & Cold. But 2nd they both operate differently on an Animal Body viz Relatively, i.e their Effects are proportioned to y generating power of Heat in the System. 1st We Degree of Heat gives the Body its uniform Natural Temperament, or neither encreases or decreases it? — 62° in this Climate. the Body always

remains at 98°: in this Temperature.
any thing beyond this encreases Heat
of my Body. any thing below 62°: lessens
the Heat of the Body. This may be very
different in warm Climates. but we
have no Experiments to determine this.
3rd: The Effects of Heat & Cold are diversified
as acting on Sentient Bodies, & hence
the Perception of them both are diversified
by the States of the Sentient Intensities.
4th: But all we have said concerning my
Effects of Cold will be diversified by them
acting differently on the Solids or Fluids.
5th: They will all be diversified by my power
of the System to resist or receive them

(a) Heat beyond the ordinary Heat of the Body acts as a Stimulating Inflaming Impression, bringing on Blisters &c. if it should ever arrive at 150: the Serum W: be in Danger of being coagulated: —

# of Heat Absolutely considered.

respective Effects. —

we shall now speak in particular of the Effects of Heat &

1: we shall speak of its Absolute Effects upon the Body. I formerly supposed there was a subtile Fluid in ye Nerves wch was under the influence of Heat & Cold. this Fluid is a portion of inanimate Matter Heat therefore acts upon it & gives it greater Elasticity & Rarity wch induces Mobility in general or Sensibility & Irritability so far as it depends on Sensibility. (a)

2nd Absolute Heat gives Expansion to ye Fluids

Solids, w.h induces Laxity - a want of Tension, & in Consequence of these Mobility & Irritability.

3.rd Absolute Heat Operates on our Solids as a Moist & expands them to a greater Degree, & hence induces an Laxity in Fluidity, w.h disposes them more readily to expand the Solids.

4.th Absolute Heat acts upon our Fluids as Meats capable of intestine Motion. i.e Hastens their Putrefaction, or the Evolution of a Saline Matter w.h Likewise still further increases the Fluidity of our Blood.

5.th Absolute Heat proves a Stimulus

to ye Nervous System, & by this means accelerate the Circulation of ye Fluids, which shows its Effects on ye surface of the Body, upon ye Incr: of ye Heat being applied Originally there, as well as upon ye Incr: of ye natural Tendency of the Blood unto Circulation to the Skin.

6th Absolute Heat as evolving a Saline Matter encreases its Natural Acrimony viz: Acrimony acts more in Proportion to its being concentrated. Heat dissipates ye more fluid parts of the Blood & thus encreases its Concentration. This Incr: for ye Acrimony of ye Bile [illegible]

so much encreased in Summer time.

7th: Absolute Heat shows considerable Effects in Respiration. dense & cool Air we know favours Respiration, but a hot Air we is always rare & always introduced in lesser Quantity & reduces the Dilatation of the Lungs & consequently the Blood is more difficult to be transmitted thro the Lungs, & upon y: Ground of its Quicker Circulation in y System it is more apt to stagnate there.

But all these Absolute Powers of Heat have relative Effects on an animated Body. Every Temperature of y Air beyond 62° shows y Absolute Effects of Heat,

the determinates of generating power
& of system w: in some measure
obviates the Absolute effects of heat
but a Degree of Heat below 62: ex=
cites & generating power of y Body,
w: means it is generally felt in
a uniform temperature. formerly
explained the Reason why the Heat of
the Body is not encreased in proportion
to y Heat of the external atmosphere.
the Absolute power of Heat by rendering
the Office of our Nerves too rare events
those strong Reflections on w: Animal
Heat depends. we have a beautiful
analogy of something of y same kind
taking place in a Globe of Sulphur

w: accumulates & retains the Electricity only in a certain state of density. the moment we render it fluid it loses its Electric matter.

Our sensations of heat are greatly diversified by the state of our bodies. thus if I take 3 Glasses each of them filled w: water the one of 60° the other of 50° & the third of 40°: if I put my hand into the Glass of 40°: it will feel cold: & the last it will to the Glass of 50°: I feel an evident coldness, & vice versa if I plunge it first into the Glass of 50° & then in the Glass of 40°:

But the Absolute Degrees of Heat still continue to Operate, for the Effects of the Heat from 60° to 70: are considerably greater than of Effects from 50: to 60: Altho the Sensations may be nearly the same.

The Effects of Heat are likewise diversified by the Ordinary Temperature which is agreable to the Body. Thus a Change of Heat from 50° to 60: is Learcely perceived, but a change from 60: to 70: is Sensibly felt.

Heat is never a powerful on

painful Impression untill it exerts its Absolute Effects. It is only a degree of Heat above 98°: that proves painful or stimulating.

Heat generally acts unequally upon the System i.e. more upon ye Fluids than the Solids inducing Expansion — Elasticity &c ~~upon~~ in them. hence Plethora, & Accumulations of Blood are more frequent in ye Spring than at any other Season upon ye Acc^n of ye Heat not acting equably upon the System.

Heat acts diffinitly upon Systems according to ye Temperature they have.

been accustomed to. Thus a Man going from our Climate to y West Indies is more to be affected w: the Heat than a Person born there, While a Native of the West Indies is more apt to be affected w: Cold here than a Native of Britain — The Reason why Strangers are so subject to y Yellow Fever in y West Indies may easily be understood from this.

Let us now speak of y Absolute Effects of Cold.

1 Absolute Cold condenses y Fibres of our Nerves & thus lessens Sensibility & Irritability.

2: It gives a firmer & more tensible solid, w: gives more quick and

Cor. $\frac{9}{10}$ of Mankind live in a Degree of Heat below 62°.

stem of Oscillations w: in some measure obviates the Immobility induced by Cold. it never sinks the generating power of Heat below 98°: no more than Heat increases it.

3: It condenses the Fluids & acts the Reverse upon them to w: we said of Heat. —

... There are many means of obviating the Effects of Cold in our System 1a,

1: It increases the generating power of Heat when applied in a certain de-

= gree.

2nd It is a powerful Stimulus & prompts the System to exercise w: we know

(a) Not only so but it actually stimu-
=lates the system itself. This every
One must have experienced after
plunging their hands in snow, or
very cold water. —

obviates the Effects of Cold. [2]

3:d Increased Respiration w:ch acts as a warm Bath to the Body. This Atmos:phere is confined by our Cloathing. y:e Cloathing is warmest that w:ch receives & propagates Heat most such as Wollen &c. — the looser a Garment is the warmer as it confines more Atmosphere w:th it. The Chinese all wear Garments of this kind lined w:th Furr. Blankets are always warmer, the looser their texture are. Our Houses likewis grow warm by confining Our Atmosphere. hence y:e greater number of People in a Chamber the warmer it becomes.

4:th The Effects of Cold are Obviated by

Artificial Heat.

The Effects of Cold ~~was~~ independent of its Acting as a Sensation are

1 To induce Contriction in all irritable parts such as ye Lungs, & sometimes over all the Surface of the Body. in this manner it often brings on Fever.

2: This Contriction determines ye Blood more plentifully into the Viscera. diminishes Perspiration & increases ye Urine, as well as ye Perspiration from ye Lungs.

— It likewise determines ye Blood to ye Joints, & hence the Cause of Rheumatism.

3: Cold acts unequally upon ye System

Viz: condenses the Solids, while the Fluids remain the same, or rather as Often rarefied by the Heat generated by the Stimulus of the Cold. From this you will easily understand ye Theory of Inflamn: in general & of Rheumatism in part: esp: ially when ye Cold is applied to One part of the Body Only.

But 5: the Effects of Absolute Cold are diversified by the different States of Excitement in the Sensorium. Cold we know tends to destroy ye Mobility & Excitement of the nervous Other, but from its Stimulus it Often rather induces an Excitement of ye Sensorium than diminishes it according to ye different States of the System. It

depends upon the nervous Ether being in different Capacities of being acted upon.

— I am sorry I am obliged to conclude this Subject so abruptly, but I am necessarily called out of town. & as the Reasons so far advanced I shall proceed next to the Methodus Medendi.

Methodus Medendi

This is either Empirical or Dogmatical
the 1st Regards no Indications nor does it
enquire into the Qualities of Medicines
the 2nd enquires into the Operation of
Medicines & the State of the System in wch
they are given. I am determined to
treat the Subject now under Conside=
ration in this last way, but shall deriv
all the principles I offer you from
Experience.

The Method: Med: has been divided into 4
Parts 1 Conservatoria
2 Preservatoria
3 Curatoria
4 Mediatoria.

The 1st Relates to the Preservation of ye Powers of Life. It is sometimes called Indicatio Vitalis

The 2nd consists in defending ye Body against the Action of the Potentia Noxias. This is likewise called Indicatio Prophylactica.

The 3rd consists in changing the Proximate Cause of a Disease so as to restore the Body to Health.

The 4th is when we dont know the Proximate Cause or cannot reach it, in wch Cases we order palliative Remedies.

These Divisions of the Methodus Medendi

are unnecessary. The 3:rd or Indicatio

Curatoria comprehends all ye rest. I

shall confine myself ~~only~~ to it alone.

Most of our systematic writers lay down

general Rules in ye Medendi Methodus.

in Imitation of these I shall deliver

a few w:ch shall be very short & shall be

by the way of Structure on Dr Hoffman's

Rules.

This 1:st Rule is to follow Nature. all

Physicians from Hippocrates to Sydenham

& downwards have declaimed on this subject. The System I grant easily re-tores slight Deviations of its Ballance. - many particulars might be brót in Illustration of this w: you may recol: :lect when we spoke of the Action of Heat & Cold. - many remote Causes of Diseases excite the System in such a Manner as to remove themselves. in a word then it appears very evid: :ly that there is a "vis Naturae Medicatrix" but still I say the powers of Nature have been too much extended.

1 a/ This has arose from an Opinion that the soul was diffused thro the Body & superintended all its motion — This was Stoll's Notion — or 2 by that the Deity directed it. — This last too absurd to need Refutation. — The 1st is refuted by Dr Watts — it supposes the Divisibility of the soul — likewise its being employed about several things at the same time each of w: are absurd & contrary to all sound Philosophy. — What then is Nature? — The same in the human Body as the inanimate Parts of the World. — a conserving Principle w: acts mechanically & possesses neither wisdom Power nor Goodness in the human body. The same in Vegetables — in the human System. Trees yield to kind but return again — when Supposed pass their Growth &c —

The Stahlians imagin the Soul acts in curing all Diseases, & do not suppose it depends upon the Mechanism of the Body. There are many Diseases in w: the Efforts of Nature do nothing such as Palsy, Profusies, Many Spasmodic Disorders, Jaundice &c. But the Efforts of Nature are often fruitful. many Stahlians acknowledge that there "Anima Medica" commits Mistakes. Physicians say then have talked too extravagantly of the powers of Nature. The progress

these understand y: I believe all
Nature to be under the Administra-
tion of a Being infinitely Wise-
powerful & good - ~~But~~ who will
overrule even partial as to
make it contribute to the gent.
good of the Universe - But Evil
we have - we see it - we feel it -
in every part of nature - Storms
Thunder - Lightnings pests &c
are real Evils - all must confess
this - Altho' they are overruled as
to contribute some ways to the
well Being of the World - To return
? enquire in w Diseases
Nature helps - very few - comets
& light Deviations only - Storms
takes away our Vitiates - cill
for Drinks & light Element -
to wound - from Hard Bodies

of Medicine in my Opinion has been much retarded by paying too much attention to Nature & by being too diffident of the powers of ~~Nature~~ Art.

Dr Hoffman's 2nd Rule is to evacuate all Morbific Matters as soon as they are formed. This is a good Rule & tends directly to the former Ann, as it overthrows all the supposed Notions concerning Concoction &c. His 3rd Rule respects the last & therefore deserves no Obviation.

In all Fevers sh. pass thro' three Immutations as they are most used to circulate

Thro. thus $\frac{e}{y}$ water of a Dropsy sh: be evacuated thro $\frac{e}{y}$ Kidneys or $\frac{e}{y}$ pores of y^e Skin.

See Dr: Hoffman's Other general Rules in his Works. they are most of them so plain that they require no Explanation

I shall now proceed to the Cure of Diseases, & for y^m purpose I have given you a Table wh: comprehends all y^e Medicines used in curing Diseases of the Solids & Fluids.

excite Inflamm^n: - In Nausea
Vomiting & a Lax tone.

1l In W: she does no good - In
some we shall find inactive -
some want Wisdom - Others
Power - Others Goodness -

1 Inactive - small pox - no
Rotten when Contagion is rife: -
no Reputation ck - Thousands
many Fevers.

2d Wisdom - [redacted] Fevers - Dysentery
weakens the System -

3 Power - cannot often overcome
the cold Fit & are Intermittent w^out
proper Drinks &c.

4 Goodness - neglects to furnish us
in Cordials &c. on Fevers - but
Dose Opens us in Life.

Indicationes Curatoriae

I In Morbis Solidorum

1 Simplicium

A suppeditare materiam deficientem per
Nutrientia

B abstinere superfluum per
Erodentia

C robborare laxam per
Astringentia

D laxare rigidam per
Emollientia

2 Motricium

A ciere Motum per
Stimulantia

B minuere motum per
Sedativa

C exercere Motum inordinatum per
Antispasmodica

II In Morbis Fluidorum

1 alterare vel immutare

A aggregationem

a spissam per
Alterantia

b tenuem per
Inspissantia

B misturam praesertim correctione Seros

Shall now point out a few Diseases in w.ch the Want of one two or all these appear.

1. Fevers - Nature exerts herself only partially to throw off Debility - Some Determinations to y.e Brain Viscera & Bowels which bring on the worst of Consequences - In Intermitting the Frequency of Paroxysms instead of lessening the Fits encrease y.e in Obstructions - Dropsies &c. - In Fevers - Delirium or Insensibility Nothing called for - In Inflam.y Nature tends to suppur.n & Gangrene

2. Phthisis - Nature consists it - not thro' the Pore but into the Lungs. -

3. In Hypochondriac Melancholia

a Generatim per
Demulcentia
b Specatim per
a Antacida
β Antalkalina
γ Antizymica
2 Evacuare
A Humorem unicum corrupte
a Mucum
Corrhina &c
b Salivam per
Sialagoga
c Urinam per
Diuretica
d Perspirabile per
Diuretica + Diaphoretica
Sanguinem per
a Vias naturales per
Emmenagoga
β vias artificiales per
Phlebotomiam &c
γ Serum per
Vesicantia &c
B. Humorem vanum per
a Emetica
b Cathartica

The lady was to blame for
having prescribed the only use.

4th The great tenderness or fullness
of the stomach - Vomiting excited -
- Bleeding indicated - no natural
Hemorrhage. - Antimonials necessary -

5th Dysentery - Purging immoderate
- only to be checked by stimulating
Medicine & Narcotics. -

6th Fables - Apothegms - & all the
rules of Law: Diseases - Nature
inactive

7th Hemorrhoids - Convulsions are
Nature overacts her Purpose -
Tonics & stands instead of bleeding
& Purge. -

Of supplying the System

Every Practice of the Methodus Medendi has proceeded in this Way marking out particular Indications from the several Heads of the Causa proxima & reduce them to Classes from our systems of Pathology-

It is difficult & is far from coming near Perfection. Most systematics tho they differ in Theory have agreed pretty nearly in their Tonics, give mine as a Syllabus but as a Model. I have first made a Division into the Diseases of the Solids & the Fluids.

I begin by considering the Indication of the simple Solid. viz to supply defect in any Part. This is done by Nourishment. It is first applied to the Fluids & relates to both Solids & Fluids when deficient.

I shall not always be able to keep to this Plan & often we must consider the Matter employed before we can consider the contraindications.

With respect to Nutriment we know extremely little of the Theory of it applied to particulars as one Animal is nourished by grass another by other Animals. I shall consider what Experience has taught us with regard to the Matter. It is either vegetable, animal or of an intermediate Nature-

We are told Nature cry on two
sides only — to blow or to bleed —
— Rules — the latter lessened —
we must define most reasonable
Practice of Nature does not admit
in Physic to be — Who would
be a Horse y: required Reason to
be from the Beast — sometimes
to be turned round — Medicinal:
= ways to be distributed — to Reason
Cold: may do — But they are
to be subjected to Theory

I think the Vegetables may be divided into three Kinds
1 Sugar. 2 Farina 3 Oil.
Whether or not there is a 4th Class of mucilaginous Mat-
ter distinct from any of these may be an Enquiry, but
I think it may be reduced to one or other of the former
The Vegetable Matter is of great Diversity & I am persua-
ded that many more Subjects contain alimentary Mat-
ter than what are in Use, as Woods, Barks &c & we only
reject soft Matter as connected with some deleterious hard.
I think the three Heads I have mention'd can include
every form we know of Aliment & I shall first
consider the one we are most acquainted with.
With regard to the Farina there is no Doubt of its being
an Aliment & is in the most general Use in all
Nations. Oil we know is often taken in but it may be
doubted if they dont only take it to moisten the solid
Parts more than to furnish a Nutriment but we take
it in such large Quantity & sometimes alone that I
think it must enter into the formation of Lymph &
animal solid especially as we can find it in the form
of a Secretion & besides finding it in its Nature form
thus used we find that it enters into the Composition
of the most common aliment viz The Farina.
With regard to Sugar the Doubt may be as considerable

of
ao we da
we Item
ne on o
Gat in Ite
or Trafie
ely m
Lie on
Ite in
add ao
et in ve
Rel
Thank
4 Sma
Lei Bl
Ely w
In his
Ilegi
Di crem
1st Lowe
ao Spin
Ki: its.
5 Lue
7 Ethe
Ie. Ro
9 Legu

as we dont find it employed alone as Nutriment, but we often take it in great Quantity & besides this the Peo: ple in our Colonies are observed to become uncommonly fat in the Sugar Season & we find it the principal Part of Grapes, Figs & all such sacharine Fruits wh are remarkably nutritious especially when dried. Whole Nations live on Dates & Figs, were long the Diet of the Athlets. It is in great Quantity in all vegetables besides being added as a Condiment & especially the Farina contains it in very large Proportion even prepared & can by a Process almost entirely be converted & I am apt to think that Farina is nutritious as it contains Sugar & I imagine the true nutritious Matter is Sugar uni: ted wth Oil. We know that they do not unite in the Body when not joined before they are taken in.

In this we should expect that the Degrees of Nutrition of Vegetables should depend. & from this a Scale of the different Aliments may be formed.

1st Lowest I would put the succulent herbaceous plants as Spinnage. 2^d succulent Roots, Turnips. 3 mucaceous Fruits, Cherries. 4th sacharine fruits, Grapes. 5 These Dried, Raisins. 6. Farinaceous Roots, Potatoes. 7 Pithes of wh we have only one, Sagoe. 8 Farinaceous Seeds, Rice &c of a higher Degree than the Cerealia stand- 9 Leguminous Seeds, pease higher 10 Nuts of an oily Nature

Simon
Fridit b
Heavenly
at Lond
mediately
first an
consumm
of Sil w
proper C
unc D w
we have
separate
nesing th
Degree w
verses G
The De
ao the
de the Mu
Be ter.
is Lem
st. Mu
I eat
If. e w
Ezard

Of Milk as an Aliment.

Almonds & lastly it Pure Oil itself from the Olive as a Fruit & several Seeds.

The only Instance of an intermediate Aliment is Milk, it is Animal in some Measure but is from the most immediately received vegetable Matter & from analysing it we find an Acid easily evolved of a fermentative Nature containing a great Deal of saccharine Matter & a great Deal of Oil is diffused in it & is the Friend before their proper Union. It has also a great Quantity of Lymph united with it fully formed. In this intermediate Aliment we have also a Scale of Degree of Nutriment. If you separate the Oil from the Lymph, you have Serum nearly the lowest Step of the vegetable Aliment. A higher Degree is got from Whey taken from entire Milk. The serous & the coagulable Part in Butter milk gives another Degree & this depends on the Manner it is taken as the Milk was previous by deprived of its Cream or not then Milk itself, higher still Cream & still higher here Butter. As the chief part is chiefly animal Lymph it is the most nutritious of all especially if taken from entire Milk.

I next shall consider animal Food.

Here we have Difficulty of setting Limits I believe as at Regard to Vegetables they are all capable of affording

Of P
Nature
Poema
vriba.
necessar
because
tastes Ob
Elements
tables
especial
material
material
who are
Then as
The Parts
are lead
Nature
Vegetable
many of
more n
Dew The
The Cas
The Ar
more
The ine
of Lefs

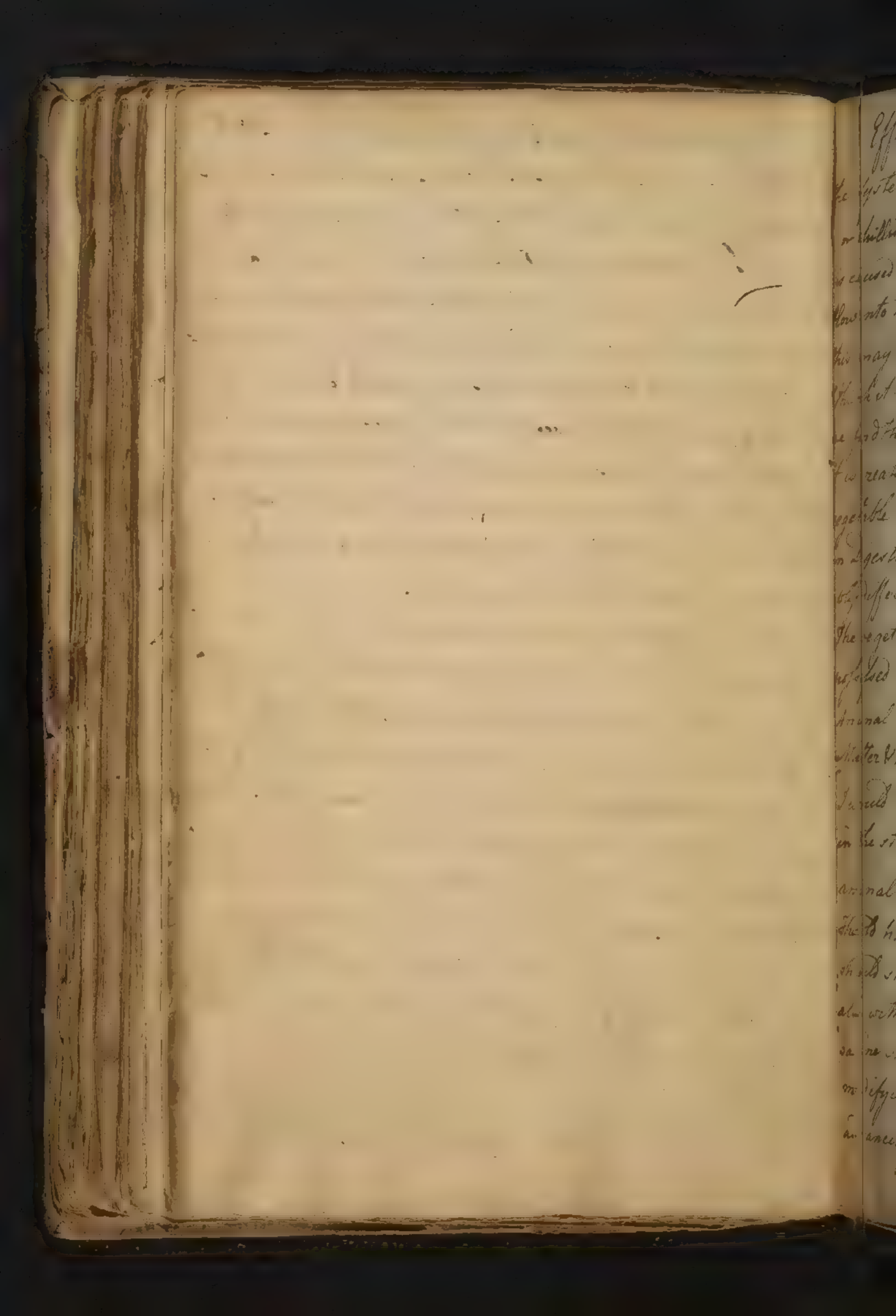
Of the various animal Aliments

Nutriment & we only reject them properly as containing Poisons as the Case is of some Insects, Vermes, Pisces & Amphibia. The Variety of Animals extend to 6 Classes. The carnivorous Animals are now generally excluded tho they have been used at Times. We find that there is a Degeneration takes Place in our Bodies from the lowest vegetable Aliment to pure animal Matter. We can contain Vegetables in our System longer than animal Food & especially carnivorous Animals & especially the mammalia & Aves of them. 1st we should chuse those who naturally live on vegetable Food alone. then those who can live on either animal or vegetable & such of them as we hence confined to vegetable Food alone. last the carnivorous. Those that live entirely on Vegetables are least alkalescent & in the Degree according to the Nature of Vegetables. 1st those who live on succulent Vegetables. 2 those that live on Grain tho it renders many of them more grateful to the Taste & perhaps more nutritious. 3. the Exercise they employ renders them more alkalescent & is the foundation of the Cars ferina as the Deer differs from the Sheep. The Animals may differ in this Respect tho the Circumstances are all the same as the Goat & Sheep. There is besides this a Difference in their Lungs more or less perspirable. Fish are less perspirable than

than other animal Food as Birds. Young Animals less than old They have been thought more nutritious, they are of slower Digestion in the Stomach however do may often be seen from weak Stomachs. I think this may be explained from our Aliment undergoing a change to a saline. Hatch more or less difficult Evolution of it to get it to pass off by the secretions I imagine may make the Difference. I must now speak of their Use to supply Deficiencies. Here I might enter on the whole Extent of Dietetics, but it is too large & I shall only speak of them as Remedies for particular Deficiencies.

The general Effects of the Nutrientia are to fill the Ves:
:sels by supplying the Quantity of Fluids, & the chief Effect
of this must be to increase the Tension of the System, wh
you know greatly encreases strength & it must by dis:
:tending the Blood vessels & Heart produce considerable
Stimulus to the whole System, & also they produce
these Effects by operating directly on the Stomach, wh
affects the Tension of the whole so much & by stimu:
:lating it more or less they also stimulate the whole
System. This is the general Operation of the Aliment
but it is difficult to explain when we consider it more
particularly.

The Action of the Stomach seems to cause a Fever in



the System in every particular first producing a cold
or chilliness in some Degree & then a hot fit. This I think
is caused by the Action of the Stomach wh causes a greater
flow into the Stomach & in some Measure into the whole,
this may be in a great Measure from its Distension but I
think it must also act from its Stimulus as an acrid, as
we find the Fever vary from the Nature of the Food.
It is greatest after eating animal Food. Both animal &
vegetable Food contain saline Matter & this is evolved
in Digestion but this saline Matter appears considera-
bly different in its Power of stimulating the System.
The vegetable food contains acid substances very dilute &
possessed also of some Degree of a sedative Power.
Animal Substances contain a more stimulating saline
Matter & that evolved too in a great Measure.
I would carry this further & say that the Difference
in the stimulating Qualities distinguishes the several ani-
mal Foods from one another, the old from the young.
The old have it most evolved & in the same proportion
should stimulate most in the Stomach. This agrees
also with the Time required in Digestion & I think this
saline Matter must have a considerable Influence in
modifying Digestion & we find that animal Matter
advancing to a putrefactive State, excites it more quickly

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than any other. In weak Stomachs of chlorotic or hysteric Women we often find roast Beef easily digested while a Chicken will remain for twenty four Hours in the Stomach. Along with this I think it is probable that the Stomach is endowed wth Tractability according to the State & Progress of Digestion & that the different Degrees of Ferment gives a peculiar Stimulus & different State as to most People we find that give a greater Sense of Distension & Weight & more thirst than Beef. - This is too extensive & difficult to be applied to all different Aliments. The Nutrientia are to be employed — Remedies where there is a Deficiency of Fluids which may happen from —
1st. Evacuation from Labour. 2 Diseases consisting in encreased Evacuation. 3 Interrupted Supply when the usual Evacuations continue. 4th. Impeded Assimilation commonly attended wth encreased Evacuation. —
There are some Cases not to be removed by the Nutrientia alone, as where the assimilating Powers are much weakened, the various Cases of wch I cannot point out. It is to be known by want of Appetite for Hunger always appears to be a Consequence of finished Digestion. This is our Guide especially if attended by Aversion Disgust or Nausea. In these Cases giving Aliment is generally lost Labour. It may justly be made a Question whether

n not we should ever force Aliment to be taken when there is no Appetite or even Aversion. I can easily conceive a Case often mentioned by our good Women where the Stomach is distended with Flatus & when forcing down a little Food as they direct may either expell the Air or cause its Change & Reabsorption & there may also be other transitory Affections that a little Aliment taken down may remove & appetite be produced: what they are I cannot venture to say. A more considerable Case where Aliment is forced is where there has been considerable Inanition & the Cause of it still subsists, here our Labour will be frustaneous whether the Cause produces improper Assimilation or not.

All these occasioning Inanition & weakening the chylopoetic Viscera have a considerable Effect in both Ways, but the Cases of Inanition subsisting with the Cause attended with encreased Impetus, such are the Cases of Fever, Inflammation & Haemorrhage, & also it may happen in the Case of encreased Impetus depending on Laxity. In this Case especially where Inanition depends on encreased Impetus, it is that the Choice of Aliment is necessary. We cannot long delay the Throwing in of Aliment & must use that wh stimulates least choosing the vegetable & avoiding animal Food.

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Here we necessarily suspect a Cacochymia wh might by
be conceived in several Cases wh I believe rarely ever
occurs & only requires a Choice of Aliment wh I
imagine is here the principal or only remedy & that
it is this & not abstinence from food that is required.
With Regard to the Administration of Aliment
there are but a very few general Rules necessary.
It must be accomodated to the State of the assimilatg
Powers with respect to our Streng th & as they are
more or less impregnated with assimilating Fer:
ments & there is no Case of Weakness where the
assimilatory Powers are not in some Degree wea:
ken'd & we should first give a small Quantity of
Aliment & then encrease it & this Rule is more forcib:
ly established if we attend to the Whole System.
The State of the Vessels is soon in some Measure ac:
commodated to the Quantity of Fluids & when there is
any Deficiency you cannot restore the proper Quanti:
ty all at once. All the other general Rules respect
the Choice of the Aliment & are either to be drawn
from what I have said above or from a full Detail
of the Materia Medica.
B This is not accurate with regard to System. I have

Of Roborants for Laxity

not given a compleat set of Indications & this is the only chirurgical one. It is of little Consequence & I could not treat it without entering on the Doctrine of ulcers &c. This is a very complex Indication & I consider it to its Application to the simple Solid, but it is most generally applicable to the solidum vivum. The Remedies for this are very various & we cannot speak of them till we have considered the Cases to wch they are applicable. 1st The State of the simple Fibre may depend on the original Fibre giving Laxity.

2d It may arise from the different Proportion of solid & fluid: (this might perhaps comprehend the other) & arises from various Causes as applied in ye Nutriment or from weakness of the exhalant Pores or from viscous Humours applied without from Inundation & lastly the proper Degree of Solidity being given it may depend on Tension or Pressure. As the same occurs in the moving Fibre it may be referr'd to two Heads

1st Atonia. 2d Palsey.

1st Atonia arises from a Cause acting on ye moving fibre itself

2d Palsy arises from the moving Fibre being weakenid from Causes interrupting the nervous Influence from the Tensorium.

From these Cases the various Roborants are indicated

and here I invert the Order of the Causes & say that in Palsy the Roborants must be stimulants.

In the Case of Atonia we see that it may depend on a Laxity of the simple Fibre & it depends more particularly on want of Tension & perhaps on some other Causes we cant explain as the Operation of Sedatives & this is to be cured by all Means of restoring Tension partly by Exercise, partly by Cold & too great Heat is one of the most frequent Causes. Lastly as depending on want of Tension it may require the same Remedies as the Case of Palsy. Exercise is one of the most powerful Means & all Medicines that condense the Solids as the Class of Astringents.

1st The Use of Stimulants. 2d The various Means of giving Tension. 3d Exercise. 4th Cold. 5th Astringents. The three last are what I am to speak of here. 3d Exercise is also to be consider'd as a remote Cause of Disease & therefore I shall speak more generally of it here.

3d It is plain that the Function of our Fibres depending on Flexibility or Elasticity depends on the mobility of the Particles on one another & this is in a great Measure regulated by Exercise & of Consequence it

strengthens the System.

Our Solids are formed of Fluids & therefore the Nutri:
ment must be in a fluid form, but there are excha:
ng Powers that increase the Density & Strength.
The Growth of the Body is always accompanied by
Stretching Powers & as it acts on elastic Bodies, it
gradually gives more Firmness & Cohesion & of Conse:
quence Strength. Exercise is the chief condensing Pow:
ers, along with Exhalation which it increases & prej:
ure from Motion or the Distension of the Vessels has
also considerable Effects. It is also probable that
the superfluous fluid is exhaled by the Power of
Heat & this is greatly increased by Exercise, so that
all these tend to shew how Exercise strengthens the
simple Solid Organs: as they use Exercise. This affects
particular Organs, but the general System must be
rendered dense by the closeness of the cellular Texture,
& this is especially brought on by Exercise as is the
Cause of the Rigidity & sometimes Ossification of the
Arteries in old Age. While Exercise has these Effects on
the simple Solid it also has considerable Powers
upon the moving Fibres as a Stimulus. I formerly

said that Repetition of Motion facilitates the In:
flux of the nervous Power to that Part & by Custom
also the Effort becomes greater & it must in time
strengthen the Tonic Power over the whole System, & the
ready Influx of nervous Power. Exercise also expedes
the Circulation & excites it over the whole arterial
monic System, & this especially affects the capillary
Vessels & merely by the force of Impulse this is en:
creased independant of the Quantity of Fluids & this
must promote all the Excretions & Secretions, by wh
Exercise not only strengthens the Solids but supports
& induces the proper State of the Fluids, hence is the
chief Means of preserving Health & a principal Re:
medy in the Cure of Diseases. It is forbid in an ex:
creased Impetus of the Blood, unless to a particular
Part & that internal wh may be remedied by Exercise
determining to the Surface, but independant of
this it may be carried to Excess, produce too great
Impetus of the Circulation, Haemorrhage & various
errores Loci. But when carried to excess also it may
overstretch the Muscular Fibres as that when employd
to strengthen the System, it must be within these

This 571

Bounds. In obstruction of the Fluids it may be a considerable Remedy, but the Objections to its Use are more remarkable are more remarkable against the deobstruent Effects of it. It may produce spas: :modic Effects, which may make them more obste: :nate & we know that whatever encreases the nerv: :ous Influx is always followed by languor & therefore it must be limited on this Acct. Hence its Limitation & the Difference of the several Ex: :ercises we employ. The voluntary Motions, bo: :dily Exercise principally produce languor & being on increased Impetus by expeding the Motion of the venous Blood. There are other Kinds of Exercise nearly independant of the Action of the Muscles got by the various Kinds of Gestation as Sailing, going in a Machine & Riding. The chief Effect is here by the external Pressure & this affects the Circulation principally, for tho the Body appears seemingly at Rest, when the Motion is equable, yet when it stops, we find the Determi: :nation it has to go forward. This greatly affects our Fluids & on the least Variation of the Motion

the fluids may be found to be impelled. This occurs more or less in all Gestation & from this I imagine they act so much as deobstruents & overcome Obstructions as much by determining to the extreme Vessels along wth these for the most Part some Degree of muscular Motion concurs. The Effort is gentle but constant & can be borne longer than bodily Exercise.

2^d Cold. As acting on the inanimate Matter, condenses it, but this only on the Surface & not considerably; next it condenses the fluids & allows the Solids to contract by this Means & to this I would add its Condensation of the nervous Power wh^ch must give the whole solid Parts more density. next its Effects are still more considerable to our System as sentient to which it acts as a constant Stimulus & from this it produces its full Effects in the Contraction of muscular Fibres. The other Effects of Cold are secondary, its Effects on the Surface are propagated along contiguous Membranes & the Tension of the whole is increased & also its Stimulus is continued over a great Part of the System particularly along the whole sanguiferous System whose Action we find it often excites & from this & from its increasing the Tone it promotes Perspiration & all the excretions & also gives Activity. There seems to be

a nervous Communication propagated whether by Tension or Stimulus by which the Application of it to a particular Part, to a finger, may spread its Effects over the whole System & produce a general Stimulation. This seems to be connected merely with a Sense of Cold as often the Body is of the usual Heat when tried by the Thermometer. Cold is a Stimulus to excite the Energy of the Sensorium whereby the whole System. The Motions of the System I have said are more directed by final Causes than we can explain & Cold by this occasions a Reaction of the Sensorium which obviates its Effects & this not only gives momentary Tension but invigorates the System. There is however something more in the Effects of Cold than I can explain. The Tonic Power depends on the Density of the solid Matter of our Nerves & especially of the Ether. If the Elasticity is encreased with greater Rarity, it does not answer the purpose but gives Debility & there must be a certain Balance of Elasticity & Density from Cold & it is therefore the most proper Stimulus to our System & this should be much above at times that State of Cold we find agreeable & greater than the Cold of our Bodies always. Heat destroys Vigour & lessens the generating Power as is seen in warm Climates. The Use of the Application of Cold is easily understood from the foregoing Principles of its acting

as a Sedative & thence destroying Life if in too great Degree of its Producing Constriction hurtful if not followed by Heat, so it is always unsafe if it does not stimulate, & if it is much greater than the Degree of our System, it must be dangerous to use it. All this applies easily to cold Bathing not so to cold Air. In Hæmorrhage we know how necessary it is to keep the Body cool, as Heat induces a Delicacy but the Degree of Cold is not ascertained tho they are now trying it in the small Pox.

3. Astringents are a set of Medicines whose Uses are ill ascertained but I shall mention some Facts with regard to them & some Conjectures otherwise.

I suspect that Astringents are such Matters as coagulate a Part of our Fluids & act on the Solids as of the same Nature. They may be reduced to three general Heads viz 1st Alcohol 2 Acids 3 Styptics!

The coagulating Power of Alcohol is well known & also its hardening the Solids. It is applied externally to harden the Surface & strengthen Cicatrice. I know of no other Use to the simple Solids. It acts also to the moving Fibre as a Stimulus & sedative.

2 Acids coagulate Fluids & harden Solids & have both a Stimulant & astringent Quality. Where they act as astringents there is probably a Diminution of Activity.

of the nervous Power, & then they act as Sedatives, but in a certain State they dissolve animal Substances & stimulate more than constringe & must be more dilute to shew Astringency. Both alkohol & acids have been reckoned powerful Astringents from their stopping Haemorrhages but this is found rather to be from their coagulating the Fluids & forming Thrombi in the patulent Mouths of the Vessels rather than constricting the Solids.

Styptics are of various Natures more than we can speak of. Acids combined with a certain Earth that dont neutralize it entirely forms a Styptic. Of this Kind is Alum & it has led to a false Notion that all Earths combined wth Acids form Styptics, but I know of none else of that Class & on the Contrary they dissolve the Blood & if ever they have appeared astringent it is from their refrigerant Powers if they are exactly saturated.

Most metallic Salts have similar Effects to Alum they unite wth Acid & give it a Degree of Concentration & thus partially saturated the acid coagulate animal Fluids & may seem astringent & it is here that some of them form powerful Stimuli. The Astringency alone appears in Acids joined with Lead & Iron.

Stimulus alone appears from Silver, Antimony & Mercury & a Mixt Operation from Gold, Copper & Zinc

The Effects of Tin & Arsenic are not sufficiently understood tho the astringency indeed appears in Tin in some Measure, but is combined with the strong Acrimonies of Arsenic. Acids appear to enter the Composition of styptics as styptics have been held the vegetable Acerbs. their Acidity covered but by what Means is uncertain. but we know that this acid concentrated & fixed in solid Matter. Austere Vegetables are sensibly styptic tho without perceptible Acidity but when we consider how easily the acerb pass into the austere we are led to think that here an Acid is combined with some Earth & it may be enquired whether or not Acid is not always the Cause of Styptidity. The vegetable astringents are known by their absorbing acid from Metals. They bring Iron to a Black Calx & are hence the Foundation of Ink. Thus far Acids operate on our simple Solids but not perhaps very considerably for there are Doubts if some thing else does not concur with the Operation of Styptics, in giving Density as in Tanning of Leather great Pains is taken to retain the cellular Texture but away the Oil. If we could not determine their Effects in any other way but the simple Solids we should find them of little Use but they operate also on the sensient

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Parts. A small Quantity of Alum or Saccharum Sa:
turni applied to the Tongue will produce sensible
Constriction over all the Fauces, Whereas Decoctions
impregnated with Them or astringent Vapours do little
I imagine in Part from their fluid Form, in Part from
the Surface being lined with Cuticle & only act con:
siderably on the tender Parts as the Eyes, Mouth &c.
The Theory of Their Operation internally is uncer:
tain as we cannot suppose that the small Quantity
carried to the Vessels can have much Effect in Hemor:
rhages & any Effect they have must be from their Topi:
cal Constriction propagated to other Parts. The Sto:
mach is the most proper Organ for this as so much
connected with the System & here the vegetable
Astringents have small Effects compared with
the Fossil. On this footing the metallics have been
called Narcotic. They are not Hypnotics like most
Sedatives but have an Operation sui Generis which
remains to be explained.

Astringents are strengthening as changing the Ten:
sion but in a higher Degree sedatives & pernicious.
Astringents often give Constriction that prevents re:
currence of Atonia that would occasion Spasm &

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convulsion. The Operation of Bark thought generally specific certainly produces Effects in this Way but there are other Powers joined I think evident. It is surely astringent & other substances shew the same Effects, but this is not all, for those Medicines which have the Power of Bitters as well as astringents have not its Effects & yet the Ague was cured before it was known.

One Difficulty remains with regard to Bitters, they certainly strengthen but do they act as astringents or not. If they act as Astringents it greatly embarasses our Theory & we have Difficulty of supposing that they act as stimulants.

They effect the nervous system produce a strong Contraction where they are applied & invigorate the Circulation hence they act as Aperients & deobstruents as well as astringents. This appears to be according to their Degree, but there is considerable Difficulty both in Theory & Practice. If sacc: Sat: is given to stop Hemorrhage internally the only way we can suppose it to act is by propagating a Constriction from ye Stomach to that Place but we should think that it would affect the whole Vessels equally & produce great Change in the Determination & this can not be obviated by any sedative

Power but probably it may effect chiefly the Part wh
has a great Degree of Excitement. If Hemorrhages are
merely passive depending on Relaxation we see how
they may be of Use but Evacuations are most commonly
from encreased Impetus & then we see they may be
hurtfull but may they be applied externally. If
the Evacuation is violent we must hazard something
but it certainly endangers encreasing the Disease over
the System & was in the Part & it is always dangerous
to interrupt the natural Determination, but they
have sometimes been found of Service & I think this
may be explained. There is I think no Case of encreased
Impetus that does not act by Exacerbations & Remis-
sions as a Bleeding from the Nose is often a Symptom
in the Hot Fit of an Ague & a regular Hemoptoe
is sometimes cured by the Bark on the same footing
as an Intermittent is so in excessive Menstruations
even uterine Hemorrhagy & Fluor albus. Exacer-
bation & Remission appear & I think they may be
of Service & only have failed from our employing
too small Doses.

Of Emollients

Emollients may seem the converse of the other & appear to apply to the simple Solid & moving Fibre, but the relaxing the Tonic Power of moving Fibres to the sedantia & antispasmodica & here only consider the Means of relaxing rigid simple Solid. The Means are always either 1 Water. 2d Mucilage & 3d Oil. I know not if there may not be a Head of Means of dissolving animal Solid, but it is too subtile Water is by far the most powerful & if we understand the Operation of one we understand the other too, which are less powerful but more durable. Water enters into the Composition of animal Solid & according as it enters they are more or less rigid as appears from many Experiments especially Dr Bryan Robinson's. Few fluids relax more than cold Water by him it is as 35 & the other as 38. & Warm Water relaxes as 78 & not so much unless Ac. Vitr. which destroys the Substance, hence Water is the greatest if not the sole Emollient & all act as impregnated with it. I here consider its Effects as applied to the whole Surface in warm Bathing. It consists of two relaxing Powers in its Operation, Moisture & Heat. The last

not solely as assisting every Menstruum. It is
just suited as dissolving animal Matter, to clean
the Surface from Mucus & sebaceous Dirt as very apt
to concrete with Dust & obstruct the Perspiration & also
are apt to excite many cutaneous Eruptions. Hence
they obviate & cure many Diseases.
Water assisted by Heat not only dissolves & washes off such
Matter but insinuates itself into the Cuticle & relaxes it.
& tho it went no further from affecting the subjacent
Parts, it might affect the whole System from the Connec-
tion I have mentioned. In this way the Effects of
its Relaxation may be very great but they are more
as from a Number of Nerves being expanded below it.
Will only act on them as Organs of Sense but as com-
municating with the rest of the System & may be con-
sidered as rarefying the Other & relaxing the whole
System. Probably another Consideration is to be
included as far as this Relaxation of the Other is pro-
per & natural it gives a pleasing Sensation & may have
considerable Effects by withdrawing the nervous power
from the Sensorium which may be restrained from
Anxiety Delirium &c & then the warm bathing may

induce the increased State necessary to produce Sleep. Its Effects however are not confined to the simple Solid & nervous System but affects also the sanguiferous System. It is applied to the Extremities of the Vessels, rarefies them & allows a considerable Change of Determination & the Relaxation is propagated a Considerable Way. It is disputed how far it penetrates. I think from the Relaxation of the Cuticle it may affect all the adjacent Parts even the diagametis & Bones. It may also be applied to the Abdomen affect the Intestines & Viscera & remove spasmodic Affections from them.

The Application of Heat I have also said rarefies the Fluids considerably more than it relaxes the Solids & hence it may increase the Tension & Tempestes & the Heat of warm Bathing is found hurtful in the Cases of increased Tempestes. I must say that the stimulating Powers are very considerable but are safe as accompanied by a relaxing Power but this also may take Place sooner than the relaxant, but if so tempered as to come on nearly at the same Time & are moderate they can have no bad Effect & besides this the stimulating

Powers are more transitory than the relaxant. These Principles would be illustrated by an Application to particular Diseases but we have not Time for that wh have given also the Remedies for its mode of Application. I think a little below the human Heat is the proper Degree to obtain the relaxing Powers have no bad Effects from its Stimulus but we have no Experiments to determine its Effects higher & applied for long Time, 2 Hours as in France speaks of. I am uncertain how far it may produce relaxing Powers when much continued as we find in warm Climates it is very constantly used & was especially so by the Antients without any bad Effects & its Use in promoting the Principal secretions is very obvious.

I now propose to consider the Indication of exciting the Motions of the System wh is done by very various Means which might almost include all Remedies. I formerly defined Stimuli to be either direct or what immediately affected the moving Fibre or indirect wh produces a Sensation & by that Means a Reaction &c. Sensorium, &c.

Both these may be found to take Place in the nervous System, but I always have declined entering on the indirect tho I find it as a frequent Cause of Fever but I know not how to excite Fever at the proper time and due Degree or when to do it if I could & I shall only consider the direct in this I have before pointed out the several Powers that may be thus employed.

1st Every Impression producing Sensation. These are numerous & of great use with regard to the Conduct of Health & there is an Indication afterwards to respect when they are to be removed, but they are seldom given as Remedies. Most Impressions not accompanied with a reflex Sensation are seldom given & rarely taken a way in Disease. The others are rarely employed nor are more of their Operation as they act so variously on different People & are very various as the Degrees of Motion they excite from the former Habit. They are frequently Remedies by Accident but are also Potentiae nocentes. Danger sometimes cures a Palsy, but also often proves fatal. A Physician by Experience of a Patient may perhaps apply them, but for this no Rules can be given,

also pass over Motions in the System that prove indi:
rect Stimuli as included under Exercise & some of them
that come under Sedatives. Then come to the Use of Ali:
ment whether as stimulating the Stomach or the Sys:
tem in general & then I have spoke of already.

2 Tonics
3 Exercise as Tonic & stimulant
4 Cold as a Tonic & Stimulant.
5 Heat as a Stimulant.

There remains Electricity, Mechanical Stimuli
& the chymical Acids of which I am to speak.
1st Electricity this is a very subtile uncertain Enquiry
& I shall leave it on the footing of Experience. It seems
to act most purely on the nervous Power while the others
act principally on the sanguiferous. This Power of ex:
citing Motion on the nervous Power makes it proper on
a Torpor of it but at the same Time it may prove destruc:
tive of life & we know not the proper Limits & I think
I have seen both therefore it is always to be employed with
Caution in the lower Degrees & we are to expect most of
its Effects from a Continuance & at the same Time its
Effects are not so entirely sure but it may affect the

sanguiferous System & the Danger I think often arises from exciting it where there is Congestion in the Brain.

2d Under Mechanical Stimuli I include Exercise & all Cases of Impulse. The last is most commonly to be spoke of as affecting reflex Sensation & the only Case I have to speak of is what is called Friction. Thus we can understand in no Way but from the alternate Motion providing a Stimulus to the sanguiferous System & encreasing the Determination to the Surface & encreasing Perspiration &c. I shall not say where this may be of Service but as particularly so joined with warm Bathing as practised in Asia. I seldom see its good Effects here as we apply it improperly dry where it must be very gentle or very long continued.

3 Chymical Acids or strictly stimulants. Here so great Variety of Matter is employed & we can scarce see the Connection of them & I here entirely trust to Experience as I do not see any Propriety in any of them more than others a priori as Remedies. Physicians have been satisfied by finding the Action of mechanical Acid but I could easily shew that this cannot apply to saline Matters from a Notion of these Figures taken entirely from their Figures & nothing can be more evident than that Solution does not depend on Figures from of Observation

the sensitive Plants, it is evident that there is an action of certain aetherial Matter very different from any thing spoke of in the Corpuscularian Philosophy & I have hinted at something similar to ordinary Solution of a Union of various Aethers & hinted at these in the Case of Smell & Taste & also that there may be some Cases as we see elsewhere of one Aether repelling another.

Tho we can

1st Every saline Matter soluble in Water evidently is an Acid with respect to us especially the acid & alkali the simple Bodies & they corrode the Parts & may be supposed to destroy the Aether united with the solid Parts but the neutrals dont corrode & they must have some different Operation. Some of them seem to act as Sedatives or Refrigerants, some of them more remarkably so than others. Common Salt appears the most pure Stimulus while others of them seem to require a Modification of the Nerves acting on the Stomach

2d A great Number of Oils are stimulants all those that are acrid to the Taste or odorous hence most of

the essential Oils & to these may be joined the Chemical Productions of the empyreumatic & ethereal Oils where the same Doubts lie that lie many Chemists say Oil is naturally Bland & the acrimony may be supposed depending on a saline Matter tho' it has not been discover'd.

3d Resinous Matter, they lead us to think that the Acrimony may always be saline as they in the form of Balsam appear composed of Oil & a saline Matter & in the Class of the Tetradynamia the same appears as they seem to contain a volatile Alkali

4 Various animal & mineral & some vegetable Substances peculiar. They all seem to contain saline Substances especially the two first tho they are not clearly proved, & as many of these are entirely poisonous it would give us a Difficulty of resolving Sedatives to a saline Salt was

A Doubt remains with regard to Bitters very peculiar. They all contain an Oil but whether their Operation depends on this or their saline Matter I am uncertain & especially as they act both as Stimulants & Sedatives.

The Operation of Stimuli is very extensive both on the Part & the Sensorium & on the whole sanguiferous System. They operate especially on the Part they are applied to & by that on the sanguiferous System & I think it is probable that they act on the Sensorium by the Pain they produce as in the Stomach but some of their Sedative & antispasmodic Effects shew their immediate Action on the Sensorium. As their Effects are so much we are much limited in their Use as we are not certain as to the Degree of their Stimulus & their sedative power. The Volatile Stimuli are mostly topical in their Effects & are momentary, if ever they are general they must in large Quantity & hence frequently repeated. The general Effect of most Stimuli depends on the Topical it acts on the nervous System but most on the sanguiferous. They differ as their Effects are transitory or permanent. The more they act topically, they are more permanent & less when general & hence the general may be most frequently repeated. The Topical Effects of Stimulants are Evacuations, as they operate on Excretories & I think if they are applied to excretories

they may all have this Effect in place of the Notion of specific Stimuli adapted to particular Organs only & I think all Appearance of specific Stimuli may be explained in another Way: The Chief Use of Stimulants are as Evacuants & we are at a loss for a general Stimulus in Palsy that does not destroy us by its topical Effects. In the Case of Fever where the sanguiferous System is greatly excited before it is removed we should think of the Use of Stimuli, but this has long been tried & commonly a pernicious Effects. If ever they are here admissible we are confined to the more general & transitory Stimuli accompanied at the same Time by an antispasmodic Power.

Sedantia or means of diminishing the force of Motion in the System. There are many more occasions for this Head than that of Stimulants Tenfoldone. The Powers here are very great but I think they may easily be reduced to three Heads.

1st The withdrawing the ordinary Stimuli from the System.

A Notion has prevailed that our Bodies act as an Automaton: I believe it is true in some Respect, but as our immaterial Part is connected with a material Mechanism it would fall into total Rest were not Stimuli applied. We know that it would never have appeared in the form of a living System had it not been for the Power of Heat & could we withdraw all Impressions & of Consequence stop all Sensation it would soon become a Nonentity as happened to the Dutch Physician who took a Fancy that Sleep was the most favourable State for his System.

2d Various Means of weakening the moving Power of the System whether they require any Impressions or not.

3d Various Means diminishing the mobility of the nervous Power.

The 1st is very various & considerable as by 1st The Aliment being withdrawn so considerable a Stimulus from their Bulk & Quantity daily required. 2 withdrawing all external Impression which are to be

considered as Stimuli & some of them are almost necessary to the System as Light & Noise. These act as Impressions but especially for their producing intellectual Operations & the avoiding all intellectual Operation is a 3d Head. All these causing Anxiety, & such as are personally interesting to avoiding Excess of Watching which naturally alternates with Sleep. This cannot be without the Impressions I have mentioned. 5 avoiding all reflex Sensations which require the Existence of intellectual Operations some of these are direct Stimuli, others sedative as Fear, Grief &c but act as indirect Stimuli. Here I would add 6 The Gratifying of solicitous Appetites of difficult Application applied to particular cases if the Gratification of that took off the Necessity of the System it ought be placed here but in different Ages it may arise from other Causes & is difficultly made an article of Practice & the same of the Gratification of Hunger &c if it is thrown in here it must be that the least stimulant the Gratification of Thirst we can more easily allege to be a Means of diminishing the Motion of the System as we can more easily promise on their not being De

stimulant, & they seldom are desired so by the sick here.
Another Means is avoiding muscular Motion wh affect
sensation & also stimulates the sanguiferous system as
Respiration & hence speaking & we are next to indulge
sleep & this we do by a means that might have been spoke
of under the Head of intellectual Operations by giving
Impressions of no great force or particular Tendency as
the aolian Harp wh can lead to no train of Thought &
lastly avoiding Heat so considerable a Stimulus if
above 62° for then immediately it is felt as a Stimulus
& Cool Air is then a Means but how low this may come
we know not only to ballance the generating Power.
This gives the antiphlogistic Regimen so much talked of.
2d The Means of removing Tension which I have said
is so considerable as increasing the force of Motion.
This is done by Evacuations not induced by any stimu-
lus & one we are sure of is the Case of Blood-letting
wh I think acts chiefly as a Relaxer to be considered in
another Place. Warm Bathing comes in under this
Head in the Degree so as to relax the Skin & prove an agr-
eeable Sensation & some other Impressions contain-

and leading to no Gain of Strength. Another will be perhaps to warm Bathing is warm Drink internally but they act but little in that Way they remove Thirst, uneasy Appetite & Stimuli from Acids thrown in or generated there or in the alimentary Canal altogether. They may when taken up give Increase of Tension but they relax & from Flexibility increase the Secretions which obviates this & makes them an Article of the antiphlogistic Regimen not spoke of before.

3d Those that act on the mobility of the nervous Power, they are very numerous but I refer them to 3 Refrigerant, Astringent & Soporific. These are the Medicines most strictly called Sedatives. Its very Difficult to find a common Nature in them either similarity in Substance nor Effects.

1st The only Substances to be spoke of as Refrigerants are Acids & Neutral Salts at least of certain Kinds as I think some of them are rather universally stimulant. The others & Acids are found of use in increased Impetus in Fever. Inflammation & Hemorrhage & perhaps some others. This we have as a fact

and I imagine it is by a Sedative or Refrigerant Power as no other Operation seems to account for these Effects. In Acids the Effect might be ascribed to an astringent Power but not in Neutrals & from the similarity of their Effects they are probably of nearly the same Nature. This Effect has been ascribed to an antizymic Power or a Resistance of Fermentation & particularly as Antiseptics. As such they might be supposed to operate in the Stomach but from the Quantity they can be thrown in & the Bulk of Matter they are added to I think they can have but small Effect in the Stomach & afterwards in their great Diffusion they must have very small Effect & if they are sedative we must seek for another Cause. They are also spoken of as attenuants but the Quantity is too small & Neutrals at any Rate of Acids this Effect could not occur. Of all the Acids offered their diuretic Quality is the best tho we have besides some Proofs of an equally sedative Power as we have the Effects facilitated by taking down Cold-Water into the Stomach. They both produce a cold in the Stomach & then a Sweat & we may suppose that cold produces a Reaction of the System & perhaps revulsive

2. The
an Lea
2 Am
m Dao
n. on
3 Ho
no. nu
no. not
6 Ele
7 Ele
7 Ele
7 Ho
7 nos
7 ra
8 ewo
O
10 con
11 Ph
12 ete
13 from
14 lac
15 Sa
16 lacr

do the same, tho I dont say that it is by their producing actual Cold as they do it when dissolved.

2d Another Proof of their sedative Power is that when used as Purgatives they produce Flatulency & Atonia not in Proportion to their Evacuation.

3d Tho they stimulate we never find it of any Effect nor propagated any Distance which makes it be supposed to be counteracted by a sedative Power.

Mr Alexander finds that a Dose of Nitre diminishes the Frequency of the Pulse, but it immediately returns. the first points out its refrigerant Power but its transitory Stay does not explain its Effects in Fever, the same of cold Water.

astringents. It is evident that if the Effect of it is to constringe the Part it must compress & condense the Other, it must take off Mobility & prevent the Effects of Atonia & from this we can explain the Operation of the Bark but it goes further. I used to explain the Power of Lead inducing Palsy from this, but I now do not as it does it not only in the form of Sach. Sat. but in the form of Vapour & even Mercury

does this. I think the sedative Power of several Metals appears singular & can scarcely be referrd to astringency. Soporifics are the most considerable Head of Sedatives & I cannot say to how many Heads they should be divided but I confine Myself to Opium. It is known to diminish Sensibility & Irritability in the Part & in the whole System & induces Sleep. Hence we say it diminishes the mobility or excited State of the nervous Power how I shall not attempt to explain only say that it acts immediately on the nervous Power & not on the Blood.

This I conclude first from the smallness of Quantity which cannot be supposed a Ferment.

2d From the short Time required for its Operation

3 It operates on Parts entirely removed from all Connection with the sanguiferous System as on the Heart of a Frog cut out of the Body.

It is particular suited to allay Pain from its diminishing Sensibility & Irritability being diminished by it makes it fit for allaying Motions & increased Secretions.

It is however a Stimulus also & from this I would account

for its producing Delirium & the spasmodic irregular Motions in large Doses. To account for these two different Parts in its Composition have been supposed but this is contrary to all facts in Physiology & I think its more easily explained from a Reaction being produced in the system. Its stimulating Effects are immediate & it leaves the system in a State of Debility tho its Operations are in some Degree transitory but there is a State of Atonia comes on wh disposes it to be affected by Stimuli & to spasmodic Contractions. It is a Remedy in on any Diseases but as many of its Effects are opposite it is uncertain either of them may be carried too far & as the Effects are followed by bad ones they are all embarrassed wh Difficulties in its Exhibition. I shall endeavour to obviate these & consider it as a Sedative

1st It is as a Sedative indicated in increased Sensation & increased Action but we must consider the abuse of the increased Excitement & this is always to be referred to Stimulus & is oftner to be cured by removing the Stimulus

than diminishing the Effects of them. Opium must therefore be according to the State of the Stimulus present & to its mad Effects. Opium is forbid in the Case of a permanent Stimulus in the Body especially where the sanguiferous System is excited & there is a Determination to the Brain. Then it is not only likely to be ineffectual, but is apt to increase the Power of the Stimulus. This of Opium's not being admissible in Fever is one of the most general Rules in its Exhibition in Cases of Inflammatory Diathesis, & particularly where there is topical Inflammation. It is also improper in the excited State of the sanguiferous System frequent in Hemorhagy, but is this always to be observed. It may sometimes quiet Pain in Inflammation & the Effects of the Medicine in Hemorhage but in fact we dont find it useful or allowable. Its Effects are always more or less transitory & after its Duration is over the Irritation of Inflammation & Hemorhage remain & are apt to return with more Violence wh I think is to be ascribed to its

giving a greater Irritability to the System & allow the former Stimuli to act more powerfully. Or thus Pathologists suppose always that its sedative Power relaxes the Blood Vessels & allows the Expansion of the Blood wh may perhaps occur & will add to the former Effects. There are however Cases of Topical Inflammation in wh Opium is of Service but this is the Cases of truely topical Inflammation unattended by general Fever. We are sure of some such Cases. In Rheumatism There there is general Fever I only find it gives a momentary Relief & aggravates the Disease. But where there is no Fever & the Pain is purely topical & permanent in the Part then I think Opium is of the greatest Service as is also the Case in the Toothach without Fever. I think also it is of Service in many Hemorrhages particularly of the uterine Kind wh are often from the State of the Part without any general Fever

I will go further & say that Opium is admissible where there is a topical Stimulus as Calculus in the Bladder

& Biliary Ducts. They excite often general Fever & always Inflammation. Blood letting is often required but I always find Opium safe & useful as taking off the Spasm of the Duct & allowing the Passage of the Stone. This is an Exception to a good general Rule given by Dr Young.

It is again a very general Rule that Opiates may be employed where the sanguiferous system is not excited but this is too general & I shall consider it under 2 Heads.

In Pain or increased Sensation Opium gives Relief, but it is only Temporary unless the Cause be removed but the Pain may cease after the Cause is gone or may be cured by Opium as is the Case of Spasm. Again in the Case when there is an Effort by Nature it may be of Service as in Calculus the Duct will operate in expelling it during the Digestion of Pain. It is also proper where there is no Danger of an increased impetus of the Fluids or a Rarefaction & this restrains it as in the Case of Hemorhagy. If the Pain is violent

& from a permanent Cause we think we are obliged to give it to give some Relief but it must be when the sedative Powers are considerable & the Stimulus small. as is the Case in Cancer. I dont think that the temporary Relief compensates the Aggravation of the Pains afterwards. It has noxious Effects also that restrict it as it inebriates, weakens & disorders the intellectual Functions: to this an Observation of Dr Young's is to be applied that in Cancers it had the Effect of doing this & encreasing the Pains at last. The Cases in which Opium is indicated are 1st generally Relating to the Functions of 1st Sensorium itself — 2d Increased Motion from the Condition of the moving Fibre itself in the Organs of Motion.

3d The same in the moving Fibres employed in the Functions. As to the first I need not say that it is excluded in Phrenitis & ordinary Delirium but I speak of Mania where some speak of it is highly pernicious & I here as the only effectual Medicine we can Use. I will compromise this & say that wherever there is full: ness & frequency of Pulse at the Appearance of the

Delirium ferox it is improper but where there are
none of these or especially where they have been removed
I think a full Dose of Opium is greatly to be depended
upon & we should employ it so as to get its full sedative
Effects & ovanias require a very great one & from Ob-
servation of wt Practitioners say on this I always
find the good Effect arise from it when it produces
Sleep & given sometimes to the Quantity of gr XV in
the 24 Hours
2 Increased Motion from the moving fibre etc eff.
This includes Convulsion & Spasm & I observe that
whenever these continue for any length of Time they
are of Service as in Epileptic Fits we often find not time
to give them as we know in Tetanus.
The only Cases of these in wh we are restricted is
in the Case where there is Palsy or Fever.
In the first the Excitement is demenished & in
the other I have already spoke of.
It is of Use in the Repetition of such Disorders de-
pending on Atonia which most easily explained & re-
quired to say here that Opium when it takes off the

excitement of the System may operate as Cold & give a more firm excitement & a more durable Tension. I think this probably occurs where the stimulant & sedative Powers concur tho of this I am uncertain but of the first Operation of it should come in when the Atonia should secure & of the Atonia comes on, when the sedative Power is passing off it may encrease the Disease as we sometimes find the Case in Epilepsy where it is apt to induce Palsy unless given at the exact Period when the Returns should happen, & is particularly pernicious when from a permanent Cause.

3. Increased Action in the moving Fibres employed in the various Excretions. We find that Opium can lessen the Action of the Vessels & diminish the Secretions but cannot be given when connected with Fever of the excited State of the whole System as is the Case of Sweating which is difficultly & commonly wth Danger suppressed by Opium & is commonly encreased. N° 2^d Case is where the Evacuation can only be thrown out

that Excretion & when the Stimulus is accumu:
lated as is the Case in morbid Matter in the Intes:
tines as is the Case in the first Stage of Cholera
where there is so great a Quantity of Bile in the pri:
mæ Vi. There is a Doubt when it should be
employed in Dysentery. I think this Disease
is always more or less founded on Fever & where
it is attended w^t Fever at the Time it is improper.
Again if it is considered as depending on Acrimony
on the Intestines. I imagine this should never
hinder its Use as it alleviates Pain, takes off the
spasmodic Constrictions of the Intestines & I think
the Operation of Opium is very different from other
astringents as its Effects are more transitory & it
does not while it eases Spasm stop the Peristaltic
Motion of the Guts or the Excretions from them. & I
imagine the common Source of Acrimony is the Change
of the Secretion of the mucous Glands of the Intestines
& I think it would even remove this as we find often in the

case of Cough, where an acrid Liquor is poured forth by the Use of Opium it is retained & becomes more bland. Besides this in Dysentery I think the spasmodic Constrictions often retard the solid Parts of the Fæces where the Mucus passes by Stool which is the Cause of Tenesmus & I think this is cured by the Use of Opium. As suppressed Evacuations often ensues from a Spasm in the Secretories & so Opium may be a means of inducing suppressed Secretions as well as restraining a superfluous Discharge.

Many People labouring under a nephritic Fit have the Pain stop, when it passes along the Course of the Ureter tho no Stone is voided but a Stranguary is generally brought on which must be from the Stones having found its Way to the neck of the Bladder & proving a Stimulus. Opium given here allows the Urine to be accumulated & often the Stone is passed along with it. With regard to the stimulating Power of Opium, it is clearly proved from Experiment & may be used wherever the exciting the sanguiferous System

allowable & where we fear no Harm from its
sedative Power as we do in the Case of Palsy.
As a Cordial however I think its Use must be con:
fined to those who are accustomed to it & so as we can
from the large Quantity given at different Times.
This is rarely practised in this Country, but Wine
is used in its Place. It has been given to cure
Intermittents & its Effects ascribed to its Stimulus
but I rather think they are so from its Sweating
Power & by that removing Spasm & I think its Use
in People called of a nervous Habit is to be ascribed
to this & Lemonade is rather from its sedative than
cool Effects.

These are Medicines wch are designed to remove irregular Motions in ye Moving Fibres. It is a very difficult Indication as we are yet much in ye dark concerning the Cause of Spasm upon ye Acc of our knowing so little of ye Organization of Muscular Fibres. What I have to say therefore shall be delivered in a few words.

as Spasm consists in an heap of Contraction. whatever removes these Fibres further apart will prove useful such as Heat & moisture.

2nd In Spasms there may be a State of Immobility in the Nervous power

Antispasmodica

Every thing therefore ye recovers the mobility of the nervous power will prove Antispasmodic.

3:rd Spasm often depends on an over-stretching of Muscular Fibres. the Cause of Inflammat:n can only be derived from this. This ye Congestion wch attends it sufficiently prove. Blood letting removes this. & thus proves Antispasmodic.

4:th Spasm depends upon Stimuli acting on particular parts. Whatever therefore removes these will act as Antispasmodic, such as all Sedative medicines.

Spasm arising from Cause 4:th Is Often cured by exciting a Stimulus in Another

part of the Body or by exciting some Passion of the mind. May not Antispasmodics Cauterize act in this way only?

6th Atonia often lays a Foundation for Spasm. Astringents remove this Atonia, & thus prove Antispasmodic, either applied universally or topically according to the Seat of the Atonia.

7th Spasm depending on Causes 4 & 7 are cured by Stimulants especially when it is seated in the Alimentary Canal. we prove their usefulness in these Cases from Flatus being discharged (which always arises from Spasm) immediately after the taking of Antispasmodics. The

Infusion of Flowers is in some sense a Test of an Antispasmodic Medicine. all Antispasmodics you see them are reduced to Sedative & Stimulating. the most powerful Antispasmodics are volatile Oils such as the Empireumatic Ether - Camphor Musk Castor w: contain an Essential Oil on w: their virtue depends. Alcohol proves Antispasmodic from its sedative virtues. what is volatile Alkali? I am at a loss to determine which of ye two Classes it belongs to. most of Antispasmodics are a Combination of Sedative & Stimulat^g Qualities.

II. De Morbis Fluidorum.

The Pathology of ye Fluids is in-
volved in great Darkness. I can therefore
offer only a few Conjectures on them.
They are of but little Consequence &
are in general more or less connected
w: & dependant upon the State of the
Solids. we are acquainted w: but few
Medicines that operate on the Fluids pri-
marily. I shall therefore discuss them
shortly.

When the Fluids are too viscid Attenu-
ating Medicines are indicated. But how is
this viscidity produced & in wh Cases does it
take place? For my part I know no

proofs of Lentor in the Blood. if it even does exist it must be in ye Coagulable Lymph but we have no proofs of such a viscidity even in this part of the Blood. The natural Consistence of the Blood may be lessened by water, but in ye Body I doubt whether water ever acts in this way, for it always runs off as soon as it is poured into ye System according to w^t I said before. Neutral Salts have been supposed to thin the Blood, ~~but~~ when a Salt superabound, in ye Serum it may induce a morbid tendency of them, but I believe Salts never can be introduced into the Body in sufficient quantities to attenuate the Blood. how absurd is it

to suppose ℥ij of Nitre given in 24 hours (for no Stomach can take more in that time) can thin seven pounds of Blood? Little of it mixes w: the Blood, but is washed out as fast as it is taken in. Great Commonsalt dissolves the Blood. This we prove from y Injury & Phenomena attending it, but w: are y Diseases w: require such a Medicine? & who would submit to take it in sufficient Quantities to produce such Effects? Soap is said to dissolve the Blood, if it does it must be by forming a neutral Salt w: y Acid of the Stomach, for Soap never enters into y Blood in an unfounded State. Alkaline Salts are the

most powerful Attenuants we have, but these are seldom introduced in a sufficient Quantity to the Blood. if they were they w^d be neutralized like ye Soap in the Stomach. Here I w^d Observe that many have supposed ye Attenuants dissolve Concretions in excretory Vessels, such as the Stone in ye Bladder. perhaps ye Alkaline Salts, after being diffused may again be concentrated in ye Urina passages, & thus dissolve stony Matters, but we have no Reason to suppose that any Attenuants whatever can possibly act on any Other Excretory Vessel in the Body yet may I doubt whether there ever was a Stone dissolved in the Bladder by

any Medicine whatever. We have often
seen several hundred pounds of Soap
Lime water taken to no purpose
in Cases of Stone, for Altho' Relief has
been obtained yet dissections have
shewed us the Stone presenting
Bladder as large as ever.

It is hard to tell when a Morbid Lentity takes place in the Fluids. It occurs only in those Cases where all ye Functions are obstructed as in ye Jaundice. Between pure Inspissating Medicines can do nothing. The Cure of it must be attempted by Evacuations, & by such Ferment as wolve but little saline Matter, & afford great deal of viscid Nourishment. all Vegetables are of this Nature & hence their usefulness in the Scurvy. how far are Fish — the Anchovia — and young Flesh disposed to evolve saline Matter? are they less so than other Animal Substances? I leave this Question to ye Investigation.

Demulcents are such Medicines as render Lurimony innocent without destroying it: This Indication is answered 1st by Diffusion. 2nd By Envisceating & covering Lurimony. the most corrosive Liquor are rendered inactive by being mixed w: a little Oil. all Demulcent Medicines are 1st Water, 2nd Mucilage & 3rd Oil. 1st Water not only diffuses but carries off Lurimony from the Fluids. - I have read Instances of the venereal Disease being cured by a plentiful Use of Water, but I am very doubtful of its virtues in Specific Lurimony

2nd Mucilages are much altered by the

assimilating powers, & therefore seldom enter the Blood so as to produce any Effects there. Vegetables especially of a bland viscid nature evolve their saline matter but slowly & therefore may tend to obtund Acrimony in ye Blood in a small degree.

3.rd Oil. This never appears formally in the Blood, nor can it act as an Oily demulcent in the Body. By evolving its saline matter slowly it may tend to give the Fluids of a denser Consistence. The Oil deposited in ye cellular membrane is designed only to be absorbed in Fever, when the tendency of the Fluids is to an acid state. I have no great Dependence upon it as a demulent.

℥ij of bil taken in ℥xx in homo I am sure
can do but little in Catarrhal and
Defluxions. However much Physicians
depend upon it.

# of Dementia

It is hard to condescend upon particular Ceremonies. Vegetables form a great part of our Diet, & these are disposed to Acidity from y: Nature & from the Operation of the Stomach upon them, but the System is provided w: powers of Obviating it. Neither have we any Reason to suppose an Alkaline Ceremony ever present except in stagnating Fluids. I shall therefore pass over every thing y: relates to particular Ceremonies, & proceed to speak of y 2nd thing proposed by: of evacuating Humours from the Body.

2°: Evacuare
A Humorem Unicum rumpe.

Evacuations may be brót on

1: By a greater Quantity of Fluids being determined to a particular Organ.
2nd: By the Fluids being more or less prepared to pass off by a particular Function.
3rd: By exciting the Action of y Excretory or Secretory Vessels.

1st: The Determination of a greater Quantity of Fluids may be brót on by
1st: encreasing the Impetus of y Blood
& 2nd: by encreasing its Quantity. Functions are seldom encreased by y first.

I know of none but Perspiration
which is increased by 1st velocity of 1st
Blood being increased. the second
takes place w: Regard to every function
in the System. they are always increa-
sed in proportion to 1st Quantity of
Fluids to them which is always keeping
in order to bring about 1st increa-
sed function we wish for.

2nd functions are increased by 1st
Fluids being better prepared to pass
off by the secretory Organs. It is hard
to speak confidently here. we know too
little of Secretions to be able to induce
Changes in their Natures. Water in-
creases 1st Secretion of Urine & Perspiration

by altering their qualities, but w:
any substances w: induce a change
on y: nature of the saliva-mucus
bile? ——

3: By exciting the action of particu:
lar functions. This is to be done

1: By inducing such a condition of
the system w: excites the action of
secretory organs.

2nd By exciting the action of muscular
parts w: keep on secretory organs &

3rd by stimulating substances applied
to the secretory organs themselves.

1: this takes place in y secretion of
milk w: is brought on, an increased quantity

by a particular state of ye Uterus.
Bile too is encreased by Anger &
Urine by other Passions of ye Mind.
. This Manner of exciting ye Secre=
tions is seldom in our power, nor can
it be reduced to certain Rules.
2nd: Muscular Fibres altho they lie
contiguous to Glands are not so easily
excited as we could wish. ye Quan=
tity of Saliva is indeed encreased by
Mandication. perhaps the Operation
of Purges depends too only by their
encreasing the Peristaltic Motion of
ye Guts wch causes them to pour
out

a greater Quantity of the Liquor secreted by the Glands of the Intestines.

3rd The most powerful Method of exciting the functions is by applying stimulating substances to the secretory Organs. & of this we shall speak chiefly.

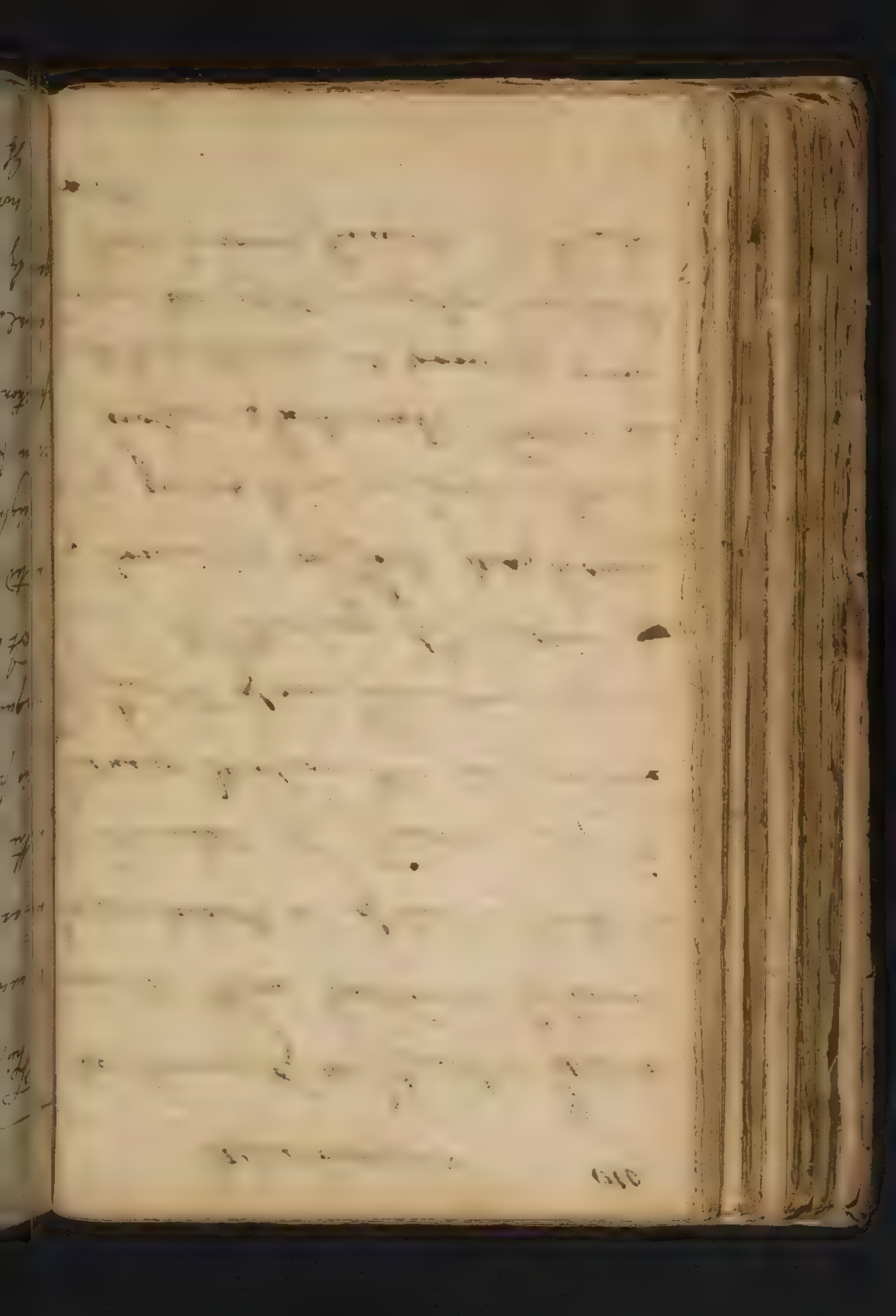
But this does not imply that there are such things as specific stimuli altho' there may appear to be some foundation for their existence. For in Anatomy has not pointed out any different conditions of particular Nerves wch we suppose to be specifically affected. 2nd most liquid substances affect all the Glands alike.

Purging vomiting & the Diuretics are excited by different Medicines only in Consequence of their being applied more or less primarily or in greater or less quantities.

I shall begin w: speaking of the secretions of Mucus. this you know abounds all over the System but more especially in the Mouth & Fauces & Bronchia. Emetics therefore are indicated in all Cases of Obstructed Mucous the worst Inflammations as well as in all Congestions of the neighboring parts such as in the Head Ach. Tooth Ach &c - Opthalmia - Gutta Serena, Deafness

& wm in Comatose & paralytic Dis-
orders. the means of exciting increasing
ne 1: warm fomentation or the
steams of warm water especially in
y various Cases of Angina. 2nd By
all y variety of acid substances w:
cure ase functions especially & those
w: are most transitory & are
least liable to bring on Inflam:
in Obstinate Head: Ache: Amaurosis
& the most violent Urhines may be
used, for by increasing the Quantity
of the Discharge, we obviate any bad
Effects of their stimulus.

We know of no Specific Expectorants. Those Medicines wh. prove Expectorants are of such a Nature as to stimulate the Stomach Guts & Kidneys, & upon this Acct. we are often disappointed of our Intentions in giving them. The Discharge of ye Medicines by vomiting or Stool may be obviated by giving them in proper Doses & at proper Intervals. Tobacco when dried & boiled loses its vomiting & by longer Drying its purgative Qualities & at last becomes Diuretic & Expectorant.



This Secretion viz:- of Saliva may be excited by an internal as well as external medicines. Mercury is the only medicine that answers this purpose. I shall therefore briefly enquire into its Modus Operandi.

It is supposed by some ye: Mercury acted upon ye Body chiefly from its weight. But this is a wrong supposition & affects the most general proposition in Philosophy wch is that ye: Qualities of Bodies are never changed by Mechanical Means, & therefore do not act Mechanically upon Animals.

- If Mercury acted from its weight

its Effects would always bear some Relation to its Fire, but this is not the Case, for we find it proves more deb=ilitant the fire it is made, nor do we ever find it in the Blood formally present. Its Combinations w: Salts the greatly alters its Operation, the more Acid we add to it the more we dimi=nish its Gravity, but w: this, we en=rease its Virulence in acting upon y body, neither do y: Saline preparations of ☿ attenuate the Blood, but on the contrary rather coagulate it, w: shows that y Salt rather thinly ☿ acts upon it. Besides the Blood is never dissolved by ☿. It is never

introduced in sufficient Quantity for this purpose. I have often seen Blood drawn from Persons under a salivation w: its ordinary healthy Appearance & sometimes in inflam: Crust.

2nd What determines Mercury to act upon y: Salivary Glands? It does not act specifically upon them, from the Arguments we formerly used ag: Specific Stimuli. 2: from its action upon all the Secretions as well as the Salivary such as y Gutts, Kidneys, Skin. hay we often find it acting upon these when the Glands secreting

Saliva are not in the least affected.
- Mercury appears to be disposed
to associate w: the Matter of ye Saliva.
- Cantharides we see are disposed
to unite w: the ye Matter of the Urine in
the same Manner. The Saliva ab=
-sounds w: an Ammoniacal salt.
It hence we observe the Salivary
Glands chiefly affected in ye Scurvy.
May not ye ℞ have a Relation
to this Ammoniacal salt of the
Saliva & may not this be the
Reason why the Salivary Glands
are affected in a Manner Analogous
to the Function in a Salivation?

the Ammoniacal Salt we see when added to water makes it dissolve a double Quantity of Q. Sublimate & shows the Relation they have to one Another.

Euphorbium Mineral acts as a Sialagogue merely by stimulating the salivary Glands in its passage into ye Stomach.

Q. In w: Case is Salivation indicated? In all Cases where we would wish to induce an entire Change in the Fluids, or to evacuate Acrimony from the Serum of the Blood in w: It has its Seat. I do not imagine that it acts as an Antidote upon any Acrimony especially the venereal

limony. for 1st we have no Analogy of it, nor Reason to believe it by Reasonings a priori. 2nd we never find it cures the venr Disease the worst exciting a plentiful Salivation.

3rd the more Stimulating we render it, the more successfully we use it. hence the superior usefulness of Solution of Corrosive Sublimate.

4th many Substances wch we know not only as Sudorifics cure the venr Disease such as ye Guajacum & many American Plants lately found out by the Indians.

Supposing them Evacuations

the only way of the ℞ Operating when is Salivation to be ordered?

I do not think it absolutely necessary at any time. It exposes the Patient to many Inconveniences. I have seen it performed in an equally short time by other Evacuations. However when Salivation can be used safely, I see no Disadvantage in it. It may always be at ye Option of the Physician.

Qu: Preparations of ℞ are best?

The mild Ones. hence a late Institution has proposed applying it only in the Form of Unction. From Experience I can recommend ye Method. —

Diuretica

In w^h cases are diuretics indicated.

1st When the blood abounds wth saline matter as in the Gouty & w^h depends upon ye presence of ye salt in ye blood w^h usually passes off by the kidneys. Vegetables are ye best diuretics for this purpose.

2nd When water predominates in the Lymphatics. I have often said the blood could not contain an extraordinary quantity of water, but they are still useful when water is stagnating or has been congested as in the Dropsy in which a

vantly function of Urine takes
place, & w.ch perhaps originally
occasioned the Disease. But how
do Diuretics operate in Dropsies?
- there is a Correspondence between
secretion & Absorption, & hypro-
ducing a watery secretion we excite
the Action of Absorption. in which man-
ner no Blue has yet said. but we
endure of the Heart. I have seen
vomiting when continued for 24
hours cure an Anasarca.
3.rd Diuretics are indicated when the
Urine is suppressed or when the

Urinary passages are obstructed,
unless the obstruction is of long continu-
ance or very much fixed. These are the
chief cases in w.h Diuretics are indica-
ted. Dr. Boerhaave says they are
useful after Concoction is finished
in acute Diseases, but this is a
Doctrine I know nothing about.
a Diuresis is brought on 1st By
filling the Body w.th watery Fluids.
2nd By diminishing Perspiration w.ch we
know carries off a great many fluids out of
the Blood.
3rd By inducing a sudden Constriction
of the urinary Vessels. Cold

contracts the Urinary Organs &c w: excites
them in such a manner as to bring
on an increased function of Urine.
The best way of applying Cold is to y^e
extremities especially ye feet.
ye By the Medicines w: are called
Diuretic. These are Saline Matters
by uniting w: ye Serosity of our
blood is more immediately disposed
to pass off thro the Kidneys. The
Acids are the least powerful Diuretics
the Muriatic w: is the most volatile
of any of ye Acids is the most
diuretic of any except the vegeta-
ble. Alkaline salts and more

diuretic than the Quiddr especially the fixed Alkalies. Neutral Salts act as Diuretics I are not liable to be changed in the Stomach. They may be given in larger Quantities than any of the Other Salts. I believe no Substance acts as a Diuretic but such as contain more or less of Saline matter. all Vegetables which act as Diuretics are of an acid volatile nature.

I know of no Indication that it is more difficult to answer than the One we have been speaking off, as all Diuretics have likewise the power

stimulating the Stomach & Intestines.
We must therefore to render them
Diuretic either diminish their bole:
ity or give them in small Doses.
They are apt to be so diffused that it
is necessary to give them pretty strong.
I have the use of Colchicum. Does
Combining Diuretics w: Sedatives
Medicines make them answer the
better? — I cannot say it does
from my own Experience: —

In w^h Cases are Diaphoretics indica-
ted? 1st: When Perspiration is Obstru-
ted but it is hard to tell when this
takes place, or w^h Diseases it induces.
They are generally given in Catarrh,
Colds &c: But we have no proofs of
Fever depending on any acrid matter
being retained in the Body. I believe
they do Service chiefly by bringing on a
proper Determination to the Skin.
2nd When an Acrimony prevails in
the System. Acrimonies are mostly
discharged by the Skin. This by Exan-
themata sufficiently prove. I believe

the venereal Disease might be cured by plentiful sweating. Diaphoretics are useful in all those Cases of lues venerea where we see ye acrimonious matter disposed to pass by ye Skin.

2dly When Water Abounds in ye System. But they are not so safe as the Diuretics in these Cases tho' they operate in ye same way.

3dly When ye Ballance of ye System has been changed or when ye Determination to the Skin has been Obstructed. This is the Case in all Fevers, & hence ye use of Diaphoretics in febrile Diseases.

But Diaphoretics should be used w:
great Caution here. The Skin often re-
mains long dry after ye Exhibition of them,
& the Fever after the most profuse
Sweating.

1st: When the Action of the System is
torpid. This happens in Somnolences
& in many comatose & paralytic
Diseases, where we are sure there is
no Congestion in the Brain.

The Diaphoretic Medicines are
1st: Water taken in large Quantities
2nd: Perspiration & Sweat: may be excited
by all the various Means of exciting
the Sanguiferous System such as Exercise

internal stimuli w: act only upon y: stomach & not directly on y heart & arteries.

3rd By exciting a determination to y skin. Heat joined w: moisture assists this indication best. Cold likewise answers this intention as also frictions.

By various matters acting on the body so as to relax the surface of the skin. Opium & all sedative medicines act in this way. Those substances likewise w: act on y: stomach prove diaphoretic such as cold water neutral salts w: are sedative & refrigerant. Mettiss act in y same way.

II In Morbis Fluidorum Indicationes Curatoriae sunt

2.do A. Sanguinem ~~per~~ evacuare per Emenagoga.

The Uterus is evolved about Puberty. the Manner of it you will easily understand from w: was said under the Head of Nutrition concerning the Doctrine of Evolution in general. the Depletion of the uterine vessels leaves them relaxed w: ~~p~~ dispposes them to pour forth blood again after a certain time has been allowed for its Accumulation. this obliges us to embrace the Doctrine of a partial Plethora

which indeed infers likewise the presence of a general Plethora which goes no further than to give an exact fullness & proper degree of Tension to the whole System. Why does not Abstraction check the Flow of the Menses? because their Flow does not depend upon an Absolute Quantity of Blood in the System, but upon a Relative Quantity, & therefore where Blood is drawn, the Balance ~~of the Lymph~~ between the Uterine & the rest of the System is still kept up. But again wherever Blood is evacuated, there we see a Plethora

most apt to happen. Those Women who are subject to a Bleeding of the Nose are troubled wth Congestions of Blood in their Heads. in ye same manner the Uterus from having long discharged Blood gets a Habit of accumulating it w^th: no Alteration can destroy. But Further the Discharge of the Menses is an Act not a passive Evacuation. — When ye Uterine Vessels are filled wth Blood their Action is caused by ye stimulus of the Blood wch excites them to discharge it. This you see connects it wth ye Nervous System, & Ac^ts in some measure from its being periodical. —

Emmenagogues are indicated when this Flux is preternatural & topic, & in such Cases only. Pathologists divide Obstructions of the Menses into 1st Mancio Mensium ie; when the Menses have never yet flowed. 2: Obstructed Men: ses ie when they have been suppressed. Many Causes concur in bringing on both these Cases of suppression — they may all be reduced to 1st want of Impulse in the Blood in the Uterine vessels. 2nd: a Torpor in the Uterine vessels which renders them insensible to the

Stimulus of the Blood, or 3:rd to an increased Resistance in ye Uterus.

or 1: The want of Impulse in ye Blood may depend upon a want of Aliment or weak assimilating powers, or plentiful Evacuations. I believe these Causes Operate but rarely.

The Chlorosis may depend upon this Cause or rather upon the 2:nd Viz: a Torpor of the Uterine Vessels. The 3:rd: viz: Resistance in the Uterus may be congenial, or arise from Obstruction by wch I mean a Difficult Transmission of Blood from a Fault in the Blood itself, or from a

Constriction w^h is seated in ye simple or moving fibres. I believe the Menses are never obstructed from a Fault in the Blood, but by Constriction always when they are checked from incidental causes.

The Means of promoting the Menses are 1: By restoring the Quantity of Blood by Aliments or strengthening the Spinals powers. 2nd By encreasing the powers of ye System in general by the Quality & Quantity of particular Foods —

Exercise & Cold Bathing. the
application of Heat especially in the
winter season has been known to
bring down the Menses. the power
of Electricity has done great service
in Obstructions of the Menses. its
Stimulus is confined chiefly to the
Nervous system, & seldom acts
upon the Lymphiferous System. tonic
Medicines such as Chalybiates Barks &c
are of great service in these Cases. &
more purely Stimulating Medicines
do service likewise. Mercury in
particular has often been em-
ployed to advantage in restoring the

Mentual Flux. I have Some
times seen Vomiting restore the
Menses. how does it act? Either
by stimulating the whole System or
by relaxing the Uterine Vessels
from stimulating the Stomach.
3d. The Menses are restored
by determining the Blood to y Uterus:
Blood Letting has long been used
for this purpose from y Notion
of Revulsion, but of this we shall
speak directly. Comprehending the
Illiacs has been employed to
determine the Blood into y Uterine
Vessels, but I cannot say I have

Often seen it used w.th Success in some Cases of Obstructed Menses from obstinate Causes it may do Mischief by throwing the Blood into the Aorta &c. Purges are useful to answer this Indication. The lower extremities ought be excited by means of Friction w.th bringing on a Determination of Blood towards the Uterus. Bathing the lower extremities has been much recommended, & I believe it is a most useful Remedy to derive to y.e Uterus. It rarefies the Fluids & thus disposes to Hemorrhage &c. 4.ly By exciting the Action of y.e

Uterine Effects. The most powerful
method of doing this is 1: by the
use of venery. I refer you to the
Devines to determine how this Re=
medy must be recommended. 2:nd by
applying stimulat: substances to the
vagina. They never enter y Cavity
of the Uterus. I have no great de=
pendence from them. They cannot act
by their Heat, for nothing warmer y:n
y Uterus itself can be introduced into it
so as to relax it.

3:d Specific stimuli have been propo=
sed to the Uterus. The fœtid Gums
& Plants have been supposed to

act in this way, but I would choose to refer their Operation to their Antispasmodic virtues. Does proves Emmenagogue either by dispersing the Blood to Hemorrhage w: Smell Doubt except it is from y: Hemor: dinal Vessels, & this it is done from th passing unchanged thro y small Guts, or it may prove Emma: gogue from stimulating the Rectum th w: we know is connected w: the Uterus, or lastly it may act merely as a Purge.

4: Warm Bathing is calculated

to answer this Indication when used in the Form of ye Lenimpium. it acts by taking off ye Resistance in the Uterus. its Virtues then are chiefly Antispasmodic.

Much Study & Attention has been
bestowed upon this Evacuation at all
times by Physicians. Many Disputes
have been agitated concerning it w:ch
indeed is a Reproach to our Dogmatic
Plan of Physic. But this defrands
upon our appealing so much to
Experience w:ch is liable to such
great Fallacy, so that this throws
the Reproach upon Empiricism. I
shall avoid entering into the Dis:
putes concerning Blood-Letting, &
deliver you in a few words my
Sentiments upon it. 1:st then Blood.

Blood-Letting

Letting acts merely as an Evacuant & therefore its Effects will be Relative to the Quantity of the Blood in the Body. Authors differ about the Quantity of the Fluids in the Body upon ye Law: of some of them taking into their computations the fluids wch ye solids yield by Chemical Analysis. I shall confine myself only to the circulating Fluids, or those only wch convey red Blood. way they drawn by Blood-letting comes only from ye red Vessels & its Effects will be confined to them, or to that Blood only wch circulates in the larger Vessels, for ye Blood

circulating in the serous vessels is beyond the Reach of ye Discharge of Blood-letting occasions. I believe therefore that the Quantity of Blood may be placed below 25 ℔ in a Man of 120 ℔ weight. But again the Effects of Blood-Letting will be diversified by the Quantity of red Globules drawn off. you see then that Blood-letting will occasion a considerable Depletion in the Arterial System. Some tell us that this Depletion is very transitory from Secretion being decreased, & from liquid Aliment being thrown in to the Body, but their

of these contribute to ye immediate
Regeneration of Blood. the last passes
off immediately by Urine or Perspiration.
the Coagulable Lymph & Red Globules
require a solid Aliment to reproduce
them, & this we know is seldom
given in those Cases, in wh: Blood. Letting
is indicated or Ordered. all this yous see
tends to show that ye Quantity of Blood
drawn is much greater wh: Regard to
the Rest of the System than has been
supposed.

The Effects then of Blood Letting are
1st: a Diminution of the Tension of y^e
Blood-vessels wh: I told you before

depends upon a certain Degree of Fullness of these Vessels. The Tension of the Muscular Fibres & by Excitement of the Sensorium; you will naturally see the Relaxed of the Blood-Vessels, or their Action depend upon a due Influx of Blood into them. a Debility then & some Degree of Atonia must al: ways succeed a Loss of Blood. If the tonic power is too much increased from any Cause Blood Letting will remove it, hence its great Use in Cases of Inflamm: & Diathesis.

The vessels are always in a distended state, & this will ans^r for Dr Haller's Experiment in w^h he found upon puncturing an Artery in a living animal that the Blood had a retrogade motion in both Arteries & veins towards the Open Orifice. It depends upon the Distending powers being taken off, & the vessels reacting on the Blood, — w^h causes it to tend towards that Part where the Tension is removed i e the Orifice.

This Doctrine overthrows the Notion of Revulsion as the Ballance as of the Systems will be restored immediately

after bleeding. The Doctrine of Revulsion first took its Rise from Physicians supposing the Arteries were rigid Canals, but later Experiments have taught us ye contrary. I conclude then y^t Blood-Letting acts only by Depletion. But this Depletion will always be more immediate & more conspicuous in particular parts than over the whole System & hence the use & Foundation of Topical Bleeding. Thus in an Opthalmia taken from near ye half the Quantity of Blood will do more Service than three times ye Quantity taken from the Arm, unless it

depends upon a general Inflam:
Diathesis of the whole System, or has
induced such an Inflammat: Diathesis.
2nd Other Circumstances attend Blood:
Letting besides Depletion. In Cases of
very great pain we often see ye
Blood afford immediate Relief. This
depends upon ye Tension of the System being
very exquisite, & uniformly connected
thro' all its parts, wch makes it
sensible to the least Relaxing as
well as Absolute Depletion. This Relief
will be greater according to ye Fulness of
the Stream in wch it flows.

3.rd Blood Letting will have Effects according to the number of Pulses in Action w.ch tend to keep up the Irritability of the System. hence a Foundation of Bleeding in a recumbent Posture. The reason we are to lying on our Backs. the Colour is dull - & the Slower the Pulse. The Symptoms w.ch follow Bleeding depend upon a Relaxation induced in the ~~Subcu~~ Arteries w.ch is communicated to the whole System. I have seen a hail young Fellow fall into a Syncope upon having a time Importuna About the Size of a Pistle of the small pox opened in his Forehead.

you will be easily led to apply
w has been said to arterial & topical
bleeding.

Blisters

Blisters have been supposed to have a very extensive Operation from a Notion w.h has prevailed of Cantharides entering the Blood & dissolving it. But I deny their having any Effects upon the Blood. for 1: they are never used in suffic.t Quantities for this purpose. 2.nd They act not only by Rubef: ating but they likewise excite Inflam: n w.h the Foundation of their Blistering. so that Blisters are both Rubefacients & Stimulants. the Effects of Blisters will vary according to the Difference of the Constitution they are employed in.

When there is little irritability they excite no Inflammation nor even quicken the Pulse, for Constitutions of a contrary temperament they prove Stimulating & quicken the pulse. They relieve an Inflammation in a particular part by bringing on an Effusion of serum towards which the Inflammation itself direct Naturally tend. This shows you their Usefulness in Rheumatism. By this Topical Evacuation it often takes off a morbid Tension from the whole System, but this Effect are always the more considerable the nearer they are applied to a

particular parts. But still I think the Tunica of the Whole Surface of the Skin may be greatly influenced by the Application of Blisters to ~~the whole~~ any Part of the Body.

This is an Evacuation of Matter in the Form of Pus & from late Discovery it appears to be produced from Serum, very thoroughly impregnated w: the Coagulable Lymph. The Discharge then from Ulcers may be considered as nearly pure Coagulable Lymph, & comes directly from the Sanguiferous System. Its Effects therefore are more considerable w: Regard to the System than we would suppose from the Quantity discharged. They draw off the Lymph faster than it is supplied by Aliment. —

But again Issues allways keep up a topical Inflamm.n: for there can be no Suppuration without some Inflamm.n:

By this Operation they Obviate: without Inflamm.n: & hence their useful employ in the Phthisis Pulmonalis. If the Body is affected w.th an Inflamm: Diathesis while an Issue runs the Inflamm.y Determin.n is towards the Issue, & thus often prevents internal Inflammation. ——

This is a very large & intricate subject.
I shall first consider their general Effects,
& will inform you how to apply them in
particular Diseases

1: They evacuate the Contents of ye Stomach.
They often operate in this manner,
when extraneous matters are introduced
there, or morbific matter formed there
by error in Digestion or other Causes.
Too much stress has been laid upon
the Evacuating Effects of Vomits from a
want of knowledge the process of Digestion
& the nature of the Fluids in ye Stomach.

2nd: Vomiting derives many Fluids into the Stomach wch were not there till the Vomit was given, & even goes so far as to ~~invert~~ invert the peristaltic motion of the Guts insomuch yt a Pancreatic Juice & Bile are often thrown up by Vomiting. This leads us to view Vomiting in a more extensive manner yt we have hitherto done. I once knew a Practitioner of Physic who used no other method of curing Dropsy but by ye frequent Exhibition of Vomits.

3d: Vomiting in Consequence of bringing the Fluids of the Guts into the Stomach generally acts as a Purge — perhaps the escape

of some part of ye Vomit on the Pylorus may contribute to bring on the Purging.

4: In vomiting the Contractions of the Diaphragm & Abdominal muscles compresses the abdominal Viscera by wh: means the Course of the Blood is variously interrupted & relaxed. they act likewise as a Stimulus to all ye Viscera & operate on ye Liver - Kidneys - Urinary &c. The Liver in particular is very liable to a tardy Circulation & a stagnation of Blood. no Medicines are capable of reaching it. Vomiting there acts immediately upon it. & therefore shd be used very freely in Diseases of the Liver. great Caution

Ph.: be used in Diseases of the Kidneys especially in Cases of Stone when they are very large.

In Obstructions of the Menses the Composition excited by vomiting excites the vessels of the Uterus & thus often brings on a Flow of the Menses. In Uterine Hemorrhages they have likewise been employed with success

- here I shall say no more.

5.th They operate on the Thorax & promote a free Circulation of the Blood thro' y.e Lungs. they cause the mucous Glands to emulge plentifully & thus prove y.e most useful Expectorants.

6.th They relieve Congestions ~~of the Head~~ in y.e Head in particular Cases. But here they ought be used only at a certain period

Emetics

of Life & under very particular Restrictions.

7.ly They quicken the Circulation all over the System & thus prove very powerful Sudorifics in Fevers & other Diseases when Sweating is necessary.

8.ly Vomiting is always attended w.th that Anxiety we call Sickness w.ch has very different Effects upon the System from any thing we have said. These Effects depend upon the wonderful Connexion w.ch is established between the Stomach & the Rest of the System —

Vobis

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Vol. III